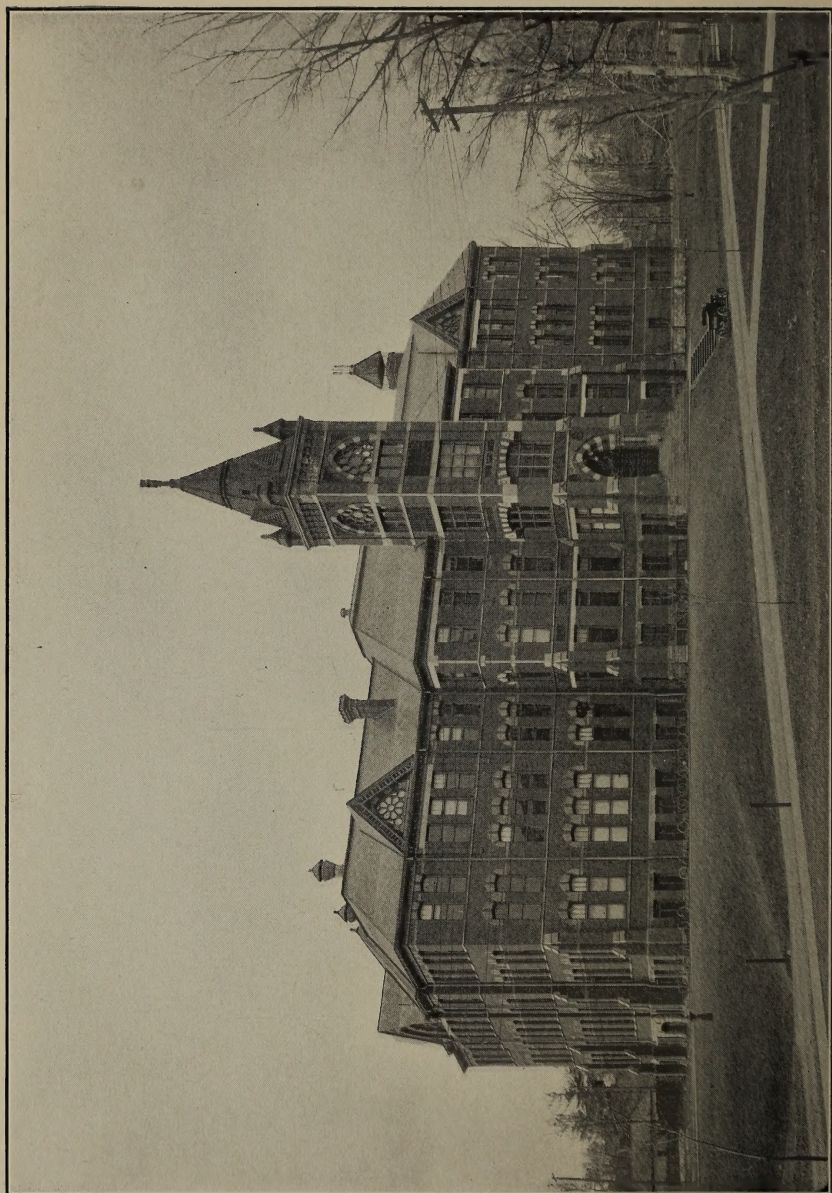




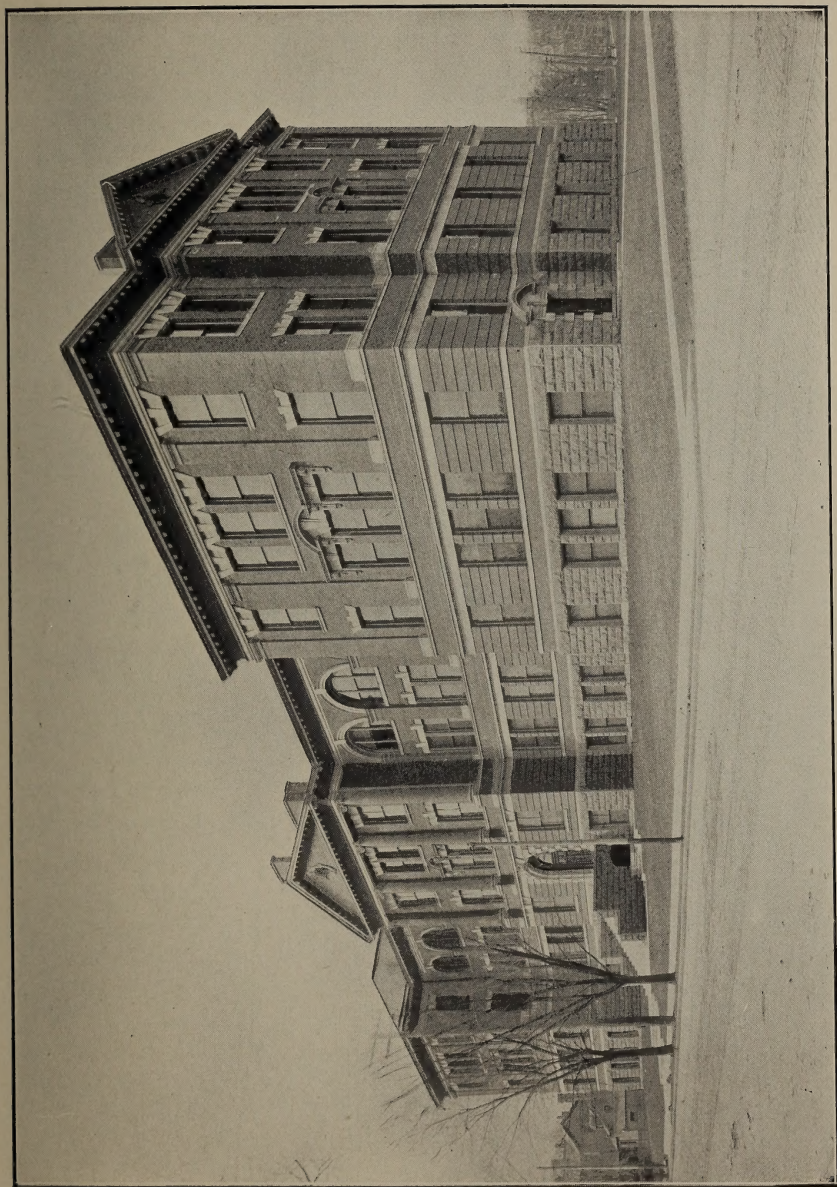
Ontario School of Practical Science Toronto

FACULTY OF APPLIED SCIENCE
AND ENGINEERING
OF THE
UNIVERSITY OF TORONTO

Calendar 1905-1906



ENGINEERING BUILDINGS.



CHEMISTRY AND MINING BUILDING.

CALENDAR

OF THE

Ontario School of Practical Science

(Affiliated to the University of Toronto)

Faculty of Applied Science and Engineering of the
University of Toronto



Printed by order of the Legislative Assembly of the Province of Ontario.

Twenty-Eighth Session, 1905-1906
TORONTO



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CALENDAR 1905-1906.

1905.	Sept.	25	Meeting of Council.
		26	Supplemental Examinations begin.
		29	Registration of Students.
	Oct.	2	First term begins.
			Lectures and practical work begin.
			Last day for presentation of Vacation Work.
		11	Meeting of Engineering Society.
		13	Meeting of Council.
		25	Meeting of Engineering Society.
	Nov.	8	Meeting of Engineering Society.
10		Meeting of Council.	
22		Meeting of Engineering Society	
Dec.	6	Meeting of Engineering Society.	
	8	Meeting of Council.	
	21	First term ends.	
1906.	Jan.	4	Second term begins.
		12	Meeting of Council.
		17	Meeting of Engineering Society.
		31	Meeting of Engineering Society.
	Feb.	9	Meeting of Council.
		14	Meeting of Engineering Society.
		28	Ash Wednesday—building closed.
	March	9	Meeting of Council.
		14	Meeting of Engineering Society.
		28	Meeting of Engineering Society.
30		Annual Meeting of Engineering Society.	
31		Last day for presentation of thesis for B. A.Sc.	
April	6	Meeting of Council.	
	7	Lectures and practical work close.	
	13	Good Friday—building closed.	
	14	Annual Examinations begin.	
	16	Examinations for B.A.Sc. begin.	
May	4	Meeting of Board of Examiners.	
	8	Meeting of Council.	
June	8	University commencement.	

The building will be closed on all public holidays, and daily at noon during July and August.

1906

MARCH

SUN.	MON.	TUE.	WED.	THU.	FRI.	SAT.
..	..	..	..	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
..

APRIL

SUN.	MON.	TUE.	WED.	THU.	FRI.	SAT.
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	..	..	..	..	..
..

MAY

SUN.	MON.	TUE.	WED.	THU.	FRI.	SAT.
..	..	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	..	..
..

JUNE

SUN.	MON.	TUE.	WED.	THU.	FRI.	SAT.
..	..	..	..	..	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
..

JULY

SUN.	MON.	TUE.	WED.	THU.	FRI.	SAT.
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	..	..	..	..
..

AUGUST

SUN.	MON.	TUE.	WED.	THU.	FRI.	SAT.
..	..	..	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	..
..

TIME TABLE—FIRST YEAR

SESSION 1905-1906

	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	
9-10	*Analytical Geometry, 1, 2, 3, 4, 5 Drawing	*Trigonometry	*Algebra	*Euclid	*Trigonometry	9-10
10-11	*Mineralogy 1, 2, 4, 5, 6 Drawing	Pen and Ink Drawing 1, 2, 3, 5, 6	Drawing 1, 2, 3, 4, 6	Descriptive Geometry 3, 6 Drawing 1, 2, 4	Surveying 3, 6 Orders of Arch's 4 Drawing 1, 2	10-11
11-12	Statics 3, 6 Dynamics 1, 2, 4 Drawing 5	Statics 1, 2, 4 Dynamics 3, 6 Drawing 5	Drawing 1, 2, 3, 4, 6	Statics 3, 6 Dynamics 1, 2, 4	Statics 1, 2, 4 Dynamics 3, 6	11-12
12-1	Electricity 3, 5, 6 Surveying 1, 2, 4	Chemistry	Drawing 1, 2, 3, 4, 6	Electricity 3, 5, 6 Descriptive Geometry 1, 2, 4	Chemistry	12-1

TIME TABLE

2-3	•Mineralogical Lab. 1 (b) Drawing 2, 3, 4, 6 Drawing 1 (a)	Field Work 1, 2, 4 (a) Chem'l Lab. 1, 2, 4 (b) Electrical Lab. 3, 5, 6 (a) Drawing 3, 6 (b)	Drawing 1, 2, 3, 4, 6	Field Work 1, 2, 4 (a) Chem'l Lab. 3, 6 (b) Drawing 1, 2, 4 (b)	Field Work 1, 2, 4 (a) Drawing 3, 6 Drawing 1, 2, 4 (b)	2-3
3-4	•Mineralogical Lab. 2 (b) Drawing 1, 3, 4, 6 Drawing 2 (a)	Field Work 1, 2, 4 (a) Chem'l Lab. 1, 2, 4 (b) Electrical Lab. 3, 5, 6 (a) Drawing 3, 6 (b)	Drawing 1, 2, 3, 4, 6	Field Work 1, 2, 4 (a) Chem'l Lab. 3, 6 (b) Drawing 3, 6 (a) Drawing 1, 2, 4 (b)	Field Work 1, 2, 4 (a) Drawing 3, 6 Drawing 1, 2, 4 (b)	3-4
4-5	•Mineralogical Lab. 4, 5, 6 (b) Drawing 1, 2, 3 Drawing 4, 5 (a)	Field Work 1, 2, 4 (a) Electrical Lab. Chem'l Lab. 1, 2, 4 (b) Drawing 3, 5, 6 (a) Drawing 3, 6 (b)	Drawing 1, 2, 3, 4, 6	Field Work 1, 2, 4 (a) Chem'l Lab. 3, 6 (b) Drawing 3, 6 (a) Drawing 1, 2, 4 (b)	Field Work 1, 2, 4 (a) Drawing 3, 6 Drawing 1, 2, 4 (b)	4-5

1. Civil Engineering ; 2. Mining Engineering ; 3. Mechanical and Electrical Engineering ; 4. Architecture ; 5. Analytical and Applied Chemistry ; 6. Chemical Engineering. *University of Toronto ; (a) First Term, (b) Second Term. Subjects not numbered are common to all the departments. In the department of Analytical and Applied Chemistry all hours not otherwise allotted are to be spent in the laboratories.

Saturdays from 9-12 will be devoted to field work during the months of October and November, and to drawing during the remainder of the Session.

TIME TABLE—SECOND YEAR

SESSION 1905-1906

	MONDAY	TUESDAY.	WEDNESDAY	THURSDAY	FRIDAY	
9-10	Electricity 3, 5, 6 Dynamics 1, 2 Orders of Arch'e 4	Surveying 1, 2, 4 Dynamics 3, 6 Organic Chemistry 5	*Calculus 1, 2, 3, 4, 6 German 5	*Astronomy 1 *Lithology 2, 4 Electricity 3, 5, 6	*Calculus 1, 2, 3, 4, 6 Organic Chemistry 5	9-10
10-11	Applied Chemistry	Optics 1, 2, 4 (a) Hydrostatics 1, 2, 4 (b) Descriptive Geometry 3, 6	Chemical Lab. 1, 2, 3, 4 Drawing 6	Applied Chemistry	Optics 3, 5, 6 (a) Hydrostatics 3, 5, 6 (b) Drawing 1, 2, 4	10-11
11-12	Spherical Trig'y 1, 2, 3 (a) *Physical Chem. 5, 6 Drawing 1, 2, 3 (b)	Drawing	Chemical Lab. 1, 2, 3, 4 Drawing 6	Geology 1, 2, 5 Metallurgy 3, 6 Drawing 4	*Physical Chemistry 5, 6 Drawing 1, 2, 3, 4	11-12
12-1	Strength of Materials 1, 2, 4 Theory of Mechanism 3, 6 German 5	Strength of Materials 3, 6 Descriptive Geometry 1, 2, 4	Strength of Materials 1, 2, 4 Theory of Mechanism 3, 6	Metallurgy 1, 2, 4, 5 Drawing 3, 6	Strength of Materials 3, 6 Drawing 1, 2, 4	12-1

TIME TABLE.

11

2-3	Physical Lab. 1 Chemical Lab. 2 (a) Electrical Lab. 3, 5, 6 Drawing 2 (b) History of Arch'te. 4	Field Work 1, 2, 4 (a) Physical Lab. 3 Chemical Lab. 1, 2, 4 (b) Chemical Lab. 6 *Mineralogical Lab. 5	History of Ornament 4 Physical Lab. 2 Chemical Lab. 6 Drawing 1, 3	Field Work 1, 2, 4 (a) Chemical Lab. 3, 6 (b) *Mineralogical Lab. 1, 2 (b) Drawing 3, 6 (a) Drawing 4 (b)	Field Work 1, 2, 4 (a) Physical Lab. 5, 6 Chemical Lab. 2 (b) Drawing 1, 4 (b) Drawing 3	2-3
3-4	Physical Lab. 1, 4 Chemical Lab. 2 (a) Electrical Lab. 3, 5, 6 Drawing 2 (b)	Field Work 1, 2, 4 (a) Physical Lab. 3 Chemical Lab. 1, 2, 4 (b) Chemical Lab. 6 *Mineralogical Lab. 5	Physical Lab. 2 Chemical Lab. 6 Drawing 1, 3, 4	Field Work 1, 2, 4 (a) Chemical Lab. 3, 6 (b) *Mineralogical Lab. 1, 2 (b) Drawing 3, 6 (a) Drawing 4 (b)	Field Work 1, 2, 4 (a) Physical Lab. 5, 6 Chemical Lab. 2 (b) Drawing 3 Drawing 1, 4 (b)	3-4
4-5	Physical Lab. 1, 4 Chemical Lab. 2 (a) Electrical Lab. 3, 5, 6 Drawing 2 (b)	Field Work 1, 2, 4 (a) Physical Lab. 3 Chemical Lab. 1, 2, 4 (b) Chemical Lab. 6 *Mineralogical Lab. 5	Physical Lab. 2 Chemical Lab. 6 Drawing 1, 3, 4	Field Work 1, 2, 4 (a) Chemical Lab. 3, 6 (b) *Mineralogical Lab. 1, 2 (b) Drawing 3, 6 (a) Drawing 4 (b)	Field Work 1, 2, 4 (a) Physical Lab. 5, 6 Chemical Lab. 2 (b) Drawing 3 Drawing 1, 4 (b)	4-5

1. Civil Engineering ; 2. Mining Engineering ; 3. Mechanical and Electrical Engineering ; 4. Architecture ; 5. Analytical and Applied Chemistry. 6. Chemical Engineering. *University of Toronto. (a) First Term. (b) Second Term. Subjects not numbered are common to all the departments. In the department of Analytical and Applied Chemistry all hours not otherwise allotted are to be spent in the laboratories.

Saturdays from 9-12 will be devoted to field work during the months of October and November and to drawing during the remainder of the Session.

TIME TABLE—THIRD YEAR.

SESSION 1905-1906.

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
9-10	Hydraulics, 1, 2, 3, 3', 4, 6 *Biology, 5	Thermodynamics, 1, 2, 3, 3', 6 History of Arch'te. 4	Comp'd Stress, Least Sqs. Acoustics, Drawing, 4 Drawing, 3 (b)	Hydraulics, 1, 2, 3', 4, 6	Thermodynamics, 1, 2, 3, 3', 6 Arch'tl. Design 4 *Biology, 5	9-10
10-11	Electricity, Alt'g. Current, Metallurgy, 2, 5, 6 Principles of Dec'n. 4 Drawing, 1	The'y. of Const't. 1, 4, do 2, 3, 5 (a) *Organic Chem. 2 (b) Chemical Lab. 3' Drawing, 3' Drawing, 3, 6 (b)	Des. Geom. Electrochem. Heat Engines, Assaying, Drawing, 1, 3, 4 (b)	Electricity, Alt'g. Current, German, Chemical Lab. Drawing, 1, 4	The'y of Const'n. 1, 4 do 2, 3, 6 (a) *Crystallography, 3' Drawing, 3, 6 (b)	10-11
11-1	Machine Design, Ore Deposits, 3', 2 Drawing, 1, 4	Mech. of Mach. 3, 3, 6 Ast'y. and Geodesy, 2 (b) Chemical Lab. 4 Drawing, 2 (a)	Surveying, Assaying, Drawing, 3, 3', 6 Drawing, 1, 4 (b)	Machine Design, 3, 3', 6 Chemical Lab. 2 Drawing, 1, 4	Min'g & Ore Dress'g. 2 Mech. of Mach. 3, 3', 6 (a) Ast'y. & Geodesy, 1 Drawing, 4 Drawing, 3, 3', 6 (b)	11-12
12-1	Applied Chemistry	Electricity, 3, 3', 6 (a) Electrical Design, 3', (b) Geology, 1, 2, 5 Drawing, 2, 4 Drawing, 3, 6 (b)	Electricity, Mill Design, Drawing, 3', (a) Drawing, 3', 6 (b)	Applied Chemistry	Electricity, 3, 3', 6 (a) Electrical Design, 3', (b) Geology, 1, 2, 5 Drawing, 2, 4 Drawing, 3, 6, (b)	12-1

1-3	Plumbing, etc., Physical Lab. Chemical Lab. *Mineral. Lab. Drawing, Drawing,	4 1 (a) 6 2, 5 3, 3', 1 (b)	Field Work, Electrical Lab. Drawing, Drawing,	1, 2, 4 (a) 3, 6 1, 2, 3' 4 (b)	Assaying, Physical Lab. Chemical Lab. Electrical Lab. Drawing,	2 2, 4 3' 1, 3	Physical Lab. Field Work, Electrical Lab. Drawing,	6 (a) 1, 2, 4 (a) 3, 3' 1, 2, 4 (b)	Chemical Lab. Physical Lab. Electrical Lab. Field Work, Drawing,	2, (b) 3, 3' (a) 6 1, 2, 4 (a) 1, 3, 3', 4 (b)	2-3
3-4	Physical Lab. Chemical Lab. *Mineral. Lab. Drawing, Drawing,	1 (a) 6 2, 5 3, 3', 4 1 (b)	Assaying, Field Work, Electrical Lab. Drawing, Drawing,	2 (b) 1, 2, 4 (a) 3', 3' (a) 3, 6 1, 3', 4 (b)	Chemical Lab. Physical Lab. Electrical Lab. Drawing,	2, 6 2, 4 3' 1, 3	Physical Lab. Field Work, Electrical Lab. Drawing,	6 (a) 2 (b) 2 (b) 1, 2, 4 (a) 3, 3' 1, 4, 6 (b)	Chemical Lab. Physical Lab. Electrical Lab. Field Work, Drawing,	2 (b) 3, 3' (a) 6 1, 2, 4 (a) 1, 3, 3', 4 (b)	3-4
4-5	Physical Lab. Chemical Lab. *Mineral. Lab. Drawing, Drawing,	1 (a) 6 2, 5 3, 3', 4 1 (b)	Assaying, Field Work, Electrical Lab. Drawing, Drawing,	2 (b) 1, 2, 4 (a) 3', 3' (a) 3, 6 3', 4 (b)	Chemical Lab. Physical Lab. Electrical Lab. Drawing,	2, 6 2, 4 3' 1, 3	Physical Lab. Assaying, Field Work, Electrical Lab. Drawing,	6 (a) 2 (b) 2 (b) 1, 2, 4 (a) 3, 3' 1, 4, 6 (b)	Chemical Lab. Physical Lab. Electrical Lab. Field Work, Drawing,	2 (b) 3, 3' (a) 6 1, 2, 4 (a) 1, 3, 3', 4 (b)	4-5

1. Civil Engineering; 2. Mining Engineering; 3 and 3'. Mechanical and Electrical Engineering; 4. Architecture; 5. Analytical and Applied Chemistry; 6. Chemical Engineering; *University of Toronto. (a) First Term. (b) Second Term. Subjects not numbered are common to all the departments. In the department of Analytical and Applied Chemistry all hours not otherwise allotted are to be spent in the laboratories.

†An option is allowed between the subjects indicated by 3 and those by 3'.

Saturday from 9-12 will be devoted to Field Work during the months of October and November and to drawing the remainder of the Session.

FOURTH OR POST-GRADUATE YEAR.

There is no regular time table for the work of this year. The time of the students is spent almost wholly in the engineering, chemical and assaying laboratories. The hours are from 9 a.m. to 5 p.m., every working day during the session. Lectures are given at such hours as suit the laboratory work.

FACULTY OF THE SCHOOL.

<i>Principal</i>	J. GALBRAITH, M.A., LL.D.
<i>Registrar</i>	A. T. LAING, B.A. Sc.

MEMBERS OF TEACHING STAFF:

J. GALBRAITH, M.A., LL.D.....	<i>Professor of Engineering (Chairman).</i>
W. HODGSON ELLIS, M.A., M.B....	<i>Professor of Applied Chemistry.</i>
A. P. COLEMAN, M.A., Ph.D.....	<i>Professor of Geology.</i>
L. B. STEWART, O.L.S., D.T.S.....	<i>Professor of Surveying and Geodesy.</i>
C. H. C. WRIGHT, B.A. Sc., Mem. O.A.A,	<i>Professor of Architecture.</i>
T. R. ROSEBRUGH, M.A.....	<i>Professor of Electrical Engineering.</i>
G. R. MICKLE, B.A.....	<i>Lecturer in Mining.</i>
R. W. ANGUS, B.A. Sc.....	<i>Lecturer in Mechanical Engineering.</i>
J. MCGOWAN, B.A., B.A.Sc.....	<i>Lecturer in Applied Mechanics.</i>
J. W. BAIN, B.A.Sc.....	<i>Lecturer in Applied Chemistry.</i>
G. R. ANDERSON, M.A.....	<i>Lecturer in Physics.</i>
H. G. McVEAN, B.A.Sc.....	<i>Demonstrator in Mechanical Engineering.</i>
H. W. PRICE, B.A.Sc.....	<i>Demonstrator in Electrical Engineering.</i>
E. G. R. ARDAGH, B.A.Sc.....	<i>Demonstrator in Chemistry.</i>
P. GILLESPIE, B.A.Sc.....	<i>Demonstrator in Applied Mechanics.</i>
J. R. COCKBURN, B.A.Sc.....	<i>Demonstrator in Drawing.</i>
A. E. GIBSON, B.A.Sc.....	<i>Fellow in Civil Engineering.</i>
J. A. MCFARLANE, B.A.Sc.....	<i>Fellow in Mechanical Engineering.</i>
H. G. SMITH, B.A.Sc.....	<i>Fellow in Electrical Engineering.</i>
G. J. MANSON, Grad.S.P.S.....	<i>Fellow in Electrical Engineering.</i>
E. WADE, Grad.S.P.S.....	<i>Fellow in Chemistry.</i>
S. DUSHMAN, B.A.....	<i>Fellow in Chemistry.</i>
J. L. R. PARSONS, B.A, D.L.S.....	<i>Fellow in Surveying.</i>
N. D. WILSON, B.A.Sc.....	<i>Fellow in Surveying.</i>
M. R. RIDDELL, Grad.S.P.S.....	<i>Fellow in Drawing.</i>
J. G. McMILLAN, B.A.Sc.....	<i>Fellow in Mining.</i>
J. A. HORTON, Grad.S.P.S.....	<i>Lecture Assistant in Chemistry.</i>

MEMBERS OF FACULTY OF ARTS:

whose classes are attended by the Regular Students of the School:

- R. RAMSAY WRIGHT, M.A., LL.D. *Professor of Biology.*
 ALFRED BAKER, M.A. *Professor of Mathematics.*
 W. R. LANG, D. Sc. *Professor of Chemistry.*
 T. L. WALKER, M.A., Ph.D. *Professor of Mineralogy and Petrography.*
 W. L. MILLER, B.A., Ph.D. *Associate Professor of Physical Chemistry.*
 ALFRED T. DELURY, B.A. *Associate Professor of Mathematics.*
 J. C. FIELDS, B.A., Ph.D. *Associate Professor of Mathematics.*
 M. A. MCKENZIE, M.A. *Associate Professor of Mathematics.*
 W. A. PARKS, B.A., Ph.D. *Lecturer in Mineralogy.*
 F. B. KENRICK, M.A., Ph.D. *Lecturer in Chemistry.*
 F. B. ALLAN, M.A., Ph.D. *Lecturer in Chemistry.*
 J. G. PARKER, B.A. *Fellow in Mathematics.*
 H. L. KERR, B.A. *Class Assistant in Mineralogy.*
 W. H. COLLINS, B.A. *Class Assistant in Mineralogy.*
-

SCHOOL OF PRACTICAL SCIENCE.

PROVINCE OF ONTARIO.

CALENDAR FOR THE SESSION 1905-1906.



THE Legislative Assembly during the Session of 1877 gave its sanction to the establishment of a School of Practical Science on the basis proposed in the memorandum of the Minister of Education confirmed by the Lieutenant-Governor in Council on the 3rd day of February, 1877.

By the scheme thus approved of, the Government effected an arrangement with the Council of University College whereby the students of the School of Practical Science enjoyed full advantage of the instruction given by its professors and lecturers in all the departments of science which were embraced in the work of the School.

This arrangement was brought to an end in 1899 by the transfer of the department of science above referred to, from University College to the University of Toronto under the operation of the University Federation Act.

In order that the students of the School might continue to enjoy the advantage of the instruction of the above departments, the Senate of the University of Toronto passed a Statute in October, 1889, affiliating the School to the University, which Statute was confirmed by the Lieutenant-Governor on the 30th day of October, 1889.

By an Order-in-Council, approved by the Lieutenant-Governor, on the 6th day of November, 1889, a Principal was appointed, and the management of the School was entrusted to a council composed of the Principal as chairman, and the Professors, Lecturers and Demonstrators appointed on the Teaching Faculty of the School.

[17]

By an Order-in-Council dated the 30th day of January, 1903, the Council of the School was made to consist of the Principal, the Professors and Lecturers, together with the Registrar.

The management and discipline of the School is vested in the Council.

By a Statute of the Senate of the University of Toronto, passed on December 14th, 1900, the teaching staff and examiners of the School of Practical Science, together with the examiners for the degree of B.A.Sc., and professional degrees in Engineering, were constituted *ex-officio* the Faculty of Applied Science and Engineering of the University of Toronto.

The statute is as follows :

By the Senate of the University of Toronto.

Be it enacted :

1. That the Faculty of Applied Science and Engineering be hereby established.

2. That the courses and examinations of the School of Practical Science leading to the diploma of the School and to the special certificates of the School, together with the courses and examinations leading to the degrees of Bachelor of Applied Science (B.A.Sc.), Civil Engineer (C. E.), Mining Engineer (M. E.), Mechanical Engineer (M. E.), and Electrical Engineer (E. E.), be the curriculum and examinations of the University in the said faculty.

3. That the members of the teaching staff of the School of Practical Science be the members of the teaching staff of the University in the said faculty.

4. That the examiners for the School of Practical Science, whether members of the teaching staff of the said School or otherwise, together with the examiners for the degrees named in clause 2, be the examiners of the University in the said faculty.

5. That the regular students of the School of Practical Science in the first, second, third and fourth years respectively be the undergraduates of the University in the corresponding years in the said faculty.

6. That the non-regular, occasional and special students of the School of Practical Science be the non-regular, occasional and special students of the University in the said faculty.

7. That the provisions of this statute apply, as far as may be, to all graduates of the School of Practical Science and to all graduates of the University in Applied Science and Engineering.

8. That no liability shall be incurred by the University of Toronto for the support or maintenance of the faculty hereby established.

BUILDINGS.

The work of the School is now carried on in two buildings, viz., the Engineering Building and the Chemistry and Mining Building.

The former building is devoted to strength and elasticity of materials, construction, machine design and mechanism, mechanics, hydraulics, thermodynamics, heat engines and boilers, pumps, electricity and electrical engineering, optics, acoustics, surveying, geodesy and astronomy, drawing, descriptive geometry, architecture, cements, masonry, etc.

The Chemistry and Mining Building affords accommodation for analytical and applied chemistry, electrochemistry, metallurgy, assaying, mining and milling, mineralogy and geology. The administration offices of the School are in this building.

DEPARTMENTS.

There are six regular Departments of Instruction, in each of which Diplomas are granted, viz. :—

1. Civil Engineering.
2. Mining Engineering.
3. Mechanical and Electrical Engineering.
4. Architecture.
5. Analytical and Applied Chemistry.
6. Chemical Engineering.

The instruction given in these departments is designed to give the student a thorough knowledge of the scientific principles

underlying the practice in the several professions, and also such a training as may make him immediately useful when he commences actual professional work.

DIPLOMA.

The regular course in each department is of three years' duration and leads to the Diploma of the School. The instruction is given partly in the lecture rooms and partly in the drafting rooms, laboratories and field. A certain amount of work is laid out for the summer vacation. The course of study in each department is general, and beyond the selection of his department the student has no opportunity to specialize.

DEGREE OF B. A. Sc.

After the general course is finished the Diploma of the School is granted and the student is at liberty either to enter the active life of his profession or to spend another year in special work. This year is called the fourth or post-graduate year. Graduates electing to proceed with their studies are allowed to select two subjects from an approved list, and are required to confine their whole attention to these subjects during the fourth year. The subjects in this list are such as require a large amount of time to be devoted to laboratory and other practical work. The advanced theoretical instruction is given either at the beginning or end of the working-day, in order not to break up the time allotted to practical work. During this year the student is required to prepare a thesis on some subject connected with his work. The practical examinations are held by the School, while the written examinations and the examination of the thesis are held by the University. After complying with all requirements, the candidate receives from the University the degree of Bachelor of Applied Science (B.A.Sc.).

PROFESSIONAL DEGREES.

Bachelors of Applied Science may, after three years spent in professional work, present themselves for the degrees of Civil Engineer (C.E.), Mining Engineer (M.E.), Mechanical Engineer (M.E.), or Electrical Engineer (E.E.), as the case may be, subject to the rules and regulations established by the University.

ADMISSION.

Candidates will be admitted as regular students in any of the regular departments of instruction on presenting satisfactory certificates of having passed either :

(a) The matriculation examination in Arts, in any University in His Majesty's Dominions, or in all the subjects of such matriculation examination except Latin and Greek, provided, however, that if an alternative be allowed by the University between either Latin or Greek and modern subjects (e.g., Modern Languages, Physics, Chemistry, etc.), the latter subjects must be taken if the former are omitted; or

(b) The Junior Leaving Examination of the Province of Ontario, including either French or German.

The case of the University of Toronto will serve as an illustration. The subjects for pass Junior Matriculation in Arts in the University of Toronto are: English Composition, English Literature, English Grammar, Algebra, Euclid, Arithmetic, History (British, Canadian and Ancient), Latin and any two of the following : Greek, French, German, Experimental Science (Physics and Chemistry). A candidate who desires to enter the School of Practical Science as a regular student, without taking Latin or Greek, will be required to present a certificate from the Registrar that he has passed in the following subjects :—English Composition, English Literature, English Grammar, Algebra, Euclid, Arithmetic, History (British, Canadian and Ancient), and any two of the following :—French, German, and Experimental Science (Physics and Chemistry).

Applications for admission to the regular Departments based upon other certificates than those above mentioned will be considered by the Council. Such applications accompanied by the necessary certificates and information, must be in the hands of the Registrar of the School before September 20th.

Students intending to write at the High School Leaving Examination for the purpose of entering the School of Practical Science may do so without having previously passed the Primary Examination. Their papers must be endorsed "For admission to School of Practical Science."

SESSIONAL FEES AND DEPOSITS.

These are payable in two instalments, one in each term.

The first instalment must be paid before December 1st, the second before March 1st.

A discount of two dollars will be made on each instalment if paid before the end of the first calendar month of the term in which it is due.

FIRST YEAR.

First Term—

Sessional Fees	\$35 00	
Library	1 00	
Deposit... ..	5 00	
		<hr/>
		\$41 00

Second Term—

Sessional Fees		35 00
		<hr/>
		76 00

SECOND YEAR.

First Term—

Sessional Fees	40 00	
Library	1 00	
Deposit... ..	5 00	
		<hr/>
		46 00

Second Term—

Sessional Fees		40 00
		<hr/>
		86 00

THIRD YEAR.

First Term—

Sessional Fees	45 00	
Library	1 00	
Deposit... ..	5 00	
		<hr/>
		51 00

Second Term—

Sessional Fees		45 00
		<hr/>
		96 00

The total expense of a regular three years' course in any department is about \$360, which amount includes books, instruments and materials as well as the fees, etc., stated in above table.

Information as to the text books, instruments and materials to be purchased by the students will be given on registration at the beginning of the session.

Fourth or Post-Graduate Year.—The fees, etc., in this year are as follows :

First Term—

Sessional Fees	\$35 00	
Library	1 00	
Deposit... ..	5 00	
		41 00

Second Term—

Sessional fees	35 00	
*University fees	20 00	
		55 00

Total		96 00
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LODGING AND BOARD.

Accommodation is readily obtainable in numerous private boarding-houses within convenient distance of the School, at a cost of from three dollars and a half upwards for comfortable lodging with board; or rooms may be rented at a cost of from one dollar and a half per week upwards, and board obtained separately at moderate rates. A list of accredited boarding-houses is kept by the Secretary of the University College Young Men's Christian Association, and students are recommended to consult him with reference to the selection of suitable accommodation.

FELLOWSHIPS.

Fellowships have been established in the following: Civil Engineering, Mechanical Engineering, Electrical Engineering, Mining Engineering, Surveying, Drawing, Analytical and Applied Chemistry, Lecture Assistant in Chemistry.

Each fellowship is of the value of \$500 per annum.

The fellows are required to take such portions of the work of instruction as may be assigned to them by the Council.

Application for these fellowships are to be made annually to the Registrar on or before the 1st day of May.

*Payable to the Bursar of the University.

REGULATIONS RESPECTING EXAMINATIONS.

All students who are candidates for diplomas or certificates shall be in attendance at the school during the whole of each term, unless exempted by special permission of the Council. The term will not be allowed to any student who has attended less than three-fourths of the required lectures and practical work, or who has been reported to the Council for bad conduct and adjudged guilty thereof.

Candidates are required to send to the Registrar at least three weeks before the commencement of the Annual Examinations in April, and the Supplemental Examinations in September, notice in writing of their intention to take such examinations.

No candidate will be allowed to write at the Annual Examinations who has not paid all fees and dues for which he is liable.

The minimum percentage of marks required to pass in the written examinations will be fixed from time to time by the Council.

The minimum percentage of marks required to pass in the practical work connected with any subject shall be one and one-half times the minimum required in the case of a written examination.

In order to pass in subjects wherein both written and practical examinations are held, the candidate must pass in both examinations.

In order to pass the practical examinations in the subjects of applied mechanics, descriptive geometry, surveying and architecture, the drawings set in the lectures on these subjects must be made.

Drawings prescribed for the first term of the session will not be counted unless finished in that term.

To pass in drawing, the drawings already referred to must be made, together with as many others as may be prescribed.

The number of practice sheets to be made by each student will depend upon his progress.

The minimum number of drawings shall be twenty-five, and the maximum number thirty-five, except in the Department of Analytical and Applied Chemistry, in which the numbers shall be fifteen and twenty-five respectively.

The minimum percentage of marks prescribed for practical work must be obtained in drawing.

The drawings must be made on paper 15 in. x 22 in., unless otherwise prescribed.

The Council reserves the right of disposing of the drawings as they may think proper. No drawings may be removed from the school without permission.

No drawings will be counted which have not been made in the drafting rooms, and during the hours allotted to such work.

To pass in Surveying the minimum percentage required for practical work must be obtained in the field work.

No field notes will be counted which have not been taken in the field, and during the hours allotted to such work.

Students taking practical astronomy are required to take observations in the field for time, latitude, and azimuth.

Vacation Work.

Vacation work must be handed in, on or before the first day of the session.

Vacation notes must be on construction only, and contain not less than twenty, nor more than thirty pages of sketches. These sketches must be free-hand pencil drawings with figured dimensions.

EXEMPTIONS.

No notes, whether taken during the session or the vacation, will be counted unless made in the standard note books of the School.

The minimum percentage of marks required for practical work must be made in the case of vacation notes.

Supplementary Examinations, Etc.

A candidate who fails in one or two subjects at the annual examinations, will be required to take supplemental examinations in such subjects.

The supplemental written examinations will begin on the 26th of September, 1905.

No candidate will be allowed to enter the fourth year who has not passed his supplemental examinations.

In the case where a candidate fails to pass a supplemental examination it will count as one of the two supplemental examinations which may be allowed him after the next annual examination.

Candidates who fail in being promoted to a higher year or in graduating will be required to take again the whole course of instruction, both theoretical and practical, of the year in which they fail before presenting themselves a second time for examination.

The fees to be paid by a student repeating a year will be the regular fees for such year.

Students are required to spend the hours of every working day between 9 a.m. and 5 p.m. at the work laid down in the time-table.

EXEMPTIONS.

Application for exemption from any of the regulations of the School must be made to the Council in writing and the particulars of the case fully stated.

REGULAR EXAMINATIONS.

(APPROXIMATE LIST.)

1. Year.

EXAMINATIONS HELD AT THE END OF THE SESSION.

Algebra.	Chemistry, Inorganic....5,6.
Euclid.	Mineralogy.....1,2,4,5,6.
Plane Trigonometry.	History of Architecture....4.
Analytical Geometry 1,2,3,4,6	Electricity.....3,5,6.
Descriptive Geometry	Magnetism and Electric-
.....1,2,3,4,6	ity.....3,5,6.
Surveying.....1,2,3,4,6	Statistics.....1,2,3,4,6.
Chemistry, Elementary.	Dynamics.....1,2,3,4,6.

EXAMINATIONS HELD DURING THE SESSION.

Drawing	
Field Notes	1,2,4.
Architectural Sketches	4.
Practical Electricity	3,5,6.
Practical Chemistry	
Practical Mineralogy	1,2,4,5,6.

II. Year.

EXAMINATIONS HELD AT THE END OF THE SESSION.

Calculus.....1,2,3,4,6.	Metallurgy.
Astronomy .....1.	Chemistry, Inorganic....5,6.
Optics.	Chemistry, Organic.....5.
Strength of Mater-	Chemistry, Physical.....5,6.
ials.....1,2,3,4,6.	Chemistry, Applied.
Dynamics.....1,2,3,6.	Electricity.....3,5,6.
Theory of Mechanism....3,6.	Descriptive Geometry
Hydrostatics.	.....1,2,3,4,6.
History of Architecture ....4.	Surveying.....1,2,4.
Orders of Architecture.4.	Spherical Trigonometry 1,2,3.
History of Ornament.....4.	Geology.....1,2,5.
Lithology2,4.	

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|--------------------------------------|---|
| 1. Civil Engineering. | 3. Mechanical and Electrical Engineering. |
| 2. Mining Engineering. | 4. Architecture. |
| 5. Analytical and Applied Chemistry. | 6. Chemical Engineering. |

EXAMINATIONS HELD DURING THE SESSION.

Drawing.....	1,2,3,4,6.
Field Notes.....	1,2.
Construction Notes.....	1,2,3,4,6.
Architectural Sketches	4.
Experimental Physics.	
Practical Electricity	3,5,6.
Practical Chemistry (qualitative).....	1,2,3,4.
Practical Chemistry (quantitative)	2,5,6.
Practical Mineralogy	1,2,5.
Practical Lithology	2.
German.....	5.

III. Year.

EXAMINATIONS HELD AT THE END OF THE SESSION.

Magnetism and Electricity.....	3,3',5.	Mechanics of Machinery	3,3',6.
Electricity.....	1,2,4,5,	Machine Design	3,3',6.
Alternating Current	3'.	Hydraulics.....	1,2,3,3',4,6.
Electrical Design	3'.	Thermodynamics ..	1,2,3,3',6.
History of Architecture	4.	Heat Engines.....	3.
History of Ornament.....	4.	Descriptive Geometry...1,2,4.	
Principles of Decoration....	4.	Electrochemistry	3',5,6.
Elements of Design.....	4.	Practical Astronomy and	
Method of least Squares....	1.	Geodesy.....	1.
Chemistry, Organic,	5,6.	Surveying and Levelling	1,2.
Chemistry, Applied.		Metallurgy.....	2,5,6.
Sanitary plumbing, Heating		Mining and Ore Dressing ..	2.
and Ventilation	4.	Ore Deposits.....	2.
Theory of Compound		Crystallography.....	2.
Stress.....	1.	Mill Design.....	3.
Economic Geology.....	1,2,5.	Biology.....	5.
Theory of Construc-		Acoustics.....	4.
tion.....	1,2,3,4,6.		

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|--------------------------------------|---|
| 1. Civil Engineering. | 3. Mechanical and Electrical Engineering. |
| 2. Mining Engineering. | 4. Architecture. |
| 5. Analytical and Applied Chemistry. | 6. Chemical Engineering. |

LIST OF EXAMINATIONS.

EXAMINATIONS HELD DURING THE SESSION.

Drawing	1,2,3,3',5,6.
Field Notes	1,2.
Construction Notes	1,3,3',4,6.
Architectural Sketches... ..	4.
Experimental Physics	
Practical Electricity	3,3',5,6.
Practical Electrochemistry	3,5,6.
Practical Chemistry	2,5,6.
Practical Biology... ..	5.
Determinative Mineralogy	2,5.
Assaying	2,5.
German	5,6.

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|------------------------------------|---|
| 1. Civil Engineering. | 3. Mechanical and Electrical Engineering. |
| 2. Mining Engineering. | 4. Architecture. |
| 5. Analytical and Applied Science. | 6. Chemical Engineering. |
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DEPARTMENTS.

CIVIL ENGINEERING.

I. Year.

MATHEMATICS.

Euclid, algebra, plane trigonometry.
Analytical plane geometry.

DRAWING.

Copying from the flat, lettering, topography.
Graphics.
Descriptive geometry in its application to plane-sided solids, orthographic (including isometric) and oblique projection.
Original surveys.

CHEMISTRY.

General principles of chemistry.
The elements and their classification.
Special study of the non-metals.
Laboratory work.

MINERALOGY.

Introductory course.
Laboratory work.

MECHANICS.

Statics and dynamics (with special reference to structures and machines).

SURVEYING.

Field and office work, chain and compass surveys, topography, preliminary instructions in the use of the transit-theodolite, plotting, mensuration.

II. Year.

MATHEMATICS.

Differential and integral calculus.
Spherical trigonometry.
Plane astronomy.

DRAWING.

Subjects of first year continued.
Coloring and shading applied to both topographical and construction drawing.
Descriptive geometry in its application to solids bounded by curved surfaces. Shades and shadows, perspective.
Machines and structures. (Drawings made from both copies and original notes.)

CHEMISTRY.

The metals and their salts.
Alkali manufacture.
Building material, mortars and cements.
Glass and pottery.
Water and its purification.
Outlines of organic chemistry.
Laboratory work.

MECHANICS.

Statics and dynamics (pure and applied).
Strength and elasticity of materials.
Experimental work in engineering laboratory.

SURVEYING.

Transit-theodolite surveying.
Levelling.
Railway location curves, etc.
Topographic, hydrographic and mining surveying..

MINERALOGY.

- Blowpipe practice.
- Determination of minerals.

GEOLOGY.

- Elements.

METALLURGY.

- Iron and steel.

PHYSICS.

- Optics.
- Hydrostatics.
- Laboratory work.

VACATION WORK.

- Constsuction Notes.

III. Year.

DRAWING.

- Subjects of previous years continued.
- Descriptive geometry—the various projections of the sphere and principle of map construction, stone cutting.
- Original designs—bridges, roofs, floors, arches, etc.

CHEMISTRY.

- Thermo-chemistry, fuels and combustion.
- Destructive distillation.
- Coal tar products.
- Explosives.
- Laboratory work.

MECHANICS.

- Statics and dynamics (pure and applied).
- Strength and elasticity of materials.
- Theory of construction.

MECHANICS—*Continued*

Practical designs—bridges, roofs, floors, arches, retaining walls, foundations, etc.

Thermodynamics and theory of the steam engine.

Hydraulics, sewerage, water supply.

Laboratory work in heat.

SURVEYING.

Levelling.

Profiles, cross sections, field work and plotting.

Computation of quantities.

Mathematical theory of surveying instruments.

Trigonometrical and barometrical levelling.

Geodesy.

Practical astronomy (treated in the manner required for the O.L.S. and D.L.S. examinations).

Least squares.

ELECTRICITY.

Dynamos and motors.

Arc and incandescent lamps.

Power transmission.

GEOLOGY.

Economic geology.

VACATION WORK.

Construction Notes.

MINING ENGINEERING.

I. Year.

MATHEMATICS.

Euclid, algebra, plane trigonometry.

Analytical plane geometry.

DRAWING.

Copying from the flat, lettering, topography.

Graphics.

Descriptive geometry in its application to plane-sided solids, orthographic. (including isometric) and oblique projection.

CHEMISTRY.

General principles of chemistry.
The elements and their classification.
Special study of the non-metals.
Laboratory work.

MINERALOGY.

Introductory course.
Laboratory work.

MECHANICS.

Statics and dynamics (with special reference to structures and machines).

SURVEYING.

Field and office work, chain and compass surveys, topography, preliminary instruction in the use of the transit-theodolite, plotting, mensuration.

II. Year.

MATHEMATICS.

Differential and integral calculus.
Spherical trigonometry.

DRAWING.

Subjects of the first year continued.
Coloring and shading applied to both topographical and construction drawing.
Descriptive geometry in its application to solids bounded by curved surfaces. Shades and shadows and perspective.
Machines and structures from both copies and original notes.

CHEMISTRY.

The metals and their salts.
Alkali manufacture.
Building materials, mortars and cements.
Glass and pottery.
Water and its purification.
Outlines of organic chemistry.
Laboratory work.

MECHANICS.

Statics and dynamics (pure and applied).
Strength and elasticity of materials.

SURVEYING.

Transit-theodolite surveying.
Levelling.
Railway location, curves, etc.
Topographic, hydrographic and mining surveying.

GEOLOGY.

Elements.

MINERALOGY.

Blowpipe practice.
Determination of minerals.
Lithology.

METALLURGY.

Iron and steel.

PHYSICS.

Optics.
Hydrostatics.
Laboratory work.

VACATION WORK.

Construction Notes.

III. Year.

DRAWING.

Subject of previous years continued.
Descriptive geometry.
Various projections of the sphere, and principles of map construction.
Stone cutting.
Original designs—bridges, roofs, floors, etc.

CHEMISTRY.

- Thermochemistry, fuels and combustion.
- Destructive distillation.
- Coal tar products.
- Explosives.
- Laboratory work.

MECHANICS.

- Statics and dynamics (pure and applied).
- Strength and elasticity of materials.
- Theory of construction.
- Thermodynamics and theory of steam engine.
- Hydraulics.
- Experimental work in engineering laboratory.

SURVEYING.

- Levelling.
- Profiles, cross-sections, field work and plotting.
- Computation of quantities.
- Mathematical theory of surveying instruments.
- Trigonometrical and barometrical levelling.

ELECTRICITY.

- Dynamos and motors.
- Arc and incandescent lamps.
- Power transmission.

MINERALOGY AND GEOLOGY.

- Economic geology.
- Palaeontology.
- Crystallography.
- Ore deposits.
- Determinative mineralogy.

METALLURGY.

- Metallurgy of gold, silver, nickel, copper, etc.
- Mining and ore dressing.
- Assaying.

VACATION WORK.

- Construction Notes.

MECHANICAL AND ELECTRICAL ENGINEERING.

I. Year.

MATHEMATICS.

Euclid, algebra, plane trigonometry.
Analytical plane geometry.

DRAWING.

Copying from the flat, lettering, graphics.
Descriptive geometry in its application to plane sided solids, orthographic (including isometric), and oblique projection.

CHEMISTRY.

General principles of chemistry.
The elements and their classification.
Special study of the non-metals.
Laboratory work.

MECHANICS.

Statics and dynamics (with special reference to structures and machines).

SURVEYING.

Application of trigonometry and principles of measurement (lectures only).

ELECTRICITY.

Magnetism, electrostatics.
Electromagnetism, current electricity.
Wiring and distribution.
Introductory laboratory course.

II. Year.

MATHEMATICS.

Differential and integral calculus.
Spherical trigonometry.

DRAWING.

Subjects of first year continued.
Coloring and shading applied in constructive drawing.
Descriptive geometry in its application to solids bounded by curved surfaces, shades, shadows and perspective.
Machines and structures (drawings made from both copies and original notes).

CHEMISTRY.

The metals and their salts.
Alkali manufacture.
Building materials, mortars and cements.
Glass and pottery.
Water and its purification.
Outlines of organic chemistry.
Laboratory work.

MECHANICS.

Statics and dynamics (pure and applied).
Theory of mechanism.
Strength and elasticity of materials.
Materials of construction.
Methods and processes.

METALLURGY.

Iron and steel.

PHYSICS.

Optics.
Hydrostatics.
Laboratory work.

ELECTRICITY.

Electrical measurements, lectures and laboratory work.

VACATION WORK.

Construction Notes.

III. Year.

In this year an option is allowed between Theory of Heat Engines and Mill Building Design on the one hand, and Alternating Current, Electrical Design and Electrochemistry on the other. The former is denoted in the time table and elsewhere by 3 and the latter by 3'.

DRAWING.

Subjects of previous year continued.
Original designs.

CHEMISTRY.

Thermochemistry, fuels and combustion.
Destructive distillation.
Coal tar products.
Explosives.

ELECTROCHEMISTRY.

Lectures and laboratory work.

MECHANICS.

Subjects of previous year continued.
Applied mechanics.
Mechanics of machinery, machine design, thermodynamics and theory of steam engine, theory of heat engines, hydraulics.
Application of principles to practical problems connected with the design, construction and testing of various prime motors and machines.
Experimental work in engineering laboratory.
Mill building design.

ELECTRICITY.

Lectures and practical work on electromagnetism, applied electromagnetism.
Direct and alternating current.
Dynamo-electric machinery.
Armature windings.
Electrical design.

ORIGINAL DESIGNS.

Engine and machine design.

VACATION WORK.

Construction Notes.

In addition to taking the course of instruction in the School and passing the requisite examinations, a candidate for the diploma in Mechanical and Electrical Engineering will be required to present satisfactory evidence of having had at least one year's good practical experience in one of the principal trades connected with mechanical work, such as machinist, pattern-maker, moulder steam engineer, etc. There is no restriction as to the place where the candidate may have gained such practical experience.

ARCHITECTURE.

I. Year.

MATHEMATICS.

Euclid, algebra, plane trigonometry.

Analytical plane geometry.

DRAWING.

Copying from the flat, lettering, topography, graphics.
Descriptive geometry in its application to plane sided solids, orthographic (including isometric) and oblique projection.

Rendering in pencil and pen and ink.

CHEMISTRY.

General principles of chemistry.

The elements and their classification.

Special study of the non-metals.

Laboratory work.

MECHANICS.

Statics (with reference to structures).

Dynamics (preliminary to the study of hydraulics).

SURVEYING.

Principles, chain surveying, mensuration.

MINERALOGY.

Introductory course.

Laboratory work.

HISTORY OF ARCHITECTURE.

General introduction.

Ancient architecture.

Egyptian, Assyrian and Persian.

II. Year.

MATHEMATICS.

Differential and integral calculus.

DRAWING.

Instrumental drawing, drawing from the cast, sketching
and water color, pen and ink.

Descriptive geometry (curved surfaces).

Shades and shadows and perspective.

CHEMISTRY.

The metals and their salts.

Alkali manufacture.

Building materials, mortars and cements.

Glass and pottery.

Water and its purification.

Outlines of organic chemistry.

Laboratory work.

MECHANICS.

Statics (pure and applied).

Strength and elasticity of materials.

Materials of construction.

SURVEYING.

Use of transit and level.

Mensuration.

LITHOLOGY.

Elementary course.

METALLURGY.

Iron and steel.

PHYSICS.

Optics.

Hydrostatics.

Laboratory work.

HISTORY OF ARCHITECTURE.

Greek and Roman.

Romanesque and Byzantine.

ORDERS AND ELEMENTS OF ARCHITECTURE.

Principles of planning.

HISTORY OF ORNAMENT.

Ancient.

Classic—Greek, Roman.

VACATION WORK.

Construction Notes.

III. Year.

DRAWING.

Descriptive geometry.

Advanced perspective, stone cutting.

Water color sketching.

Original designs—floors, trusses, arches, etc.

CHEMISTRY.

Thermochemistry, fuels and combustion.

Destructive distillation.

Coal tar products.

Explosives.

THEORY OF CONSTRUCTION.

Experimental work in engineering laboratory.
Electricity.
Hydraulics.

SANITARY SCIENCE.

House drainage and plumbing.
Ventilation and heating.

SURVEYING.

Levelling, setting out excavation, mensuration.

ELECTRICITY.

Dynamos and motors.
Arc and incandescent lamps.
Power transmission.

PHYSICS.

Acoustics, heat.
Laboratory work.

HISTORY OF ARCHITECTURE.

Gothic and Renaissance, with special reference to England.

ELEMENTS OF DESIGN.

Principles of planning with special reference to residences.
Relation between plan and elevations.

HISTORY OF ORNAMENT.

Early Christian : Gothic and Renaissance.

PRINCIPLES OF DECORATION.

VACATION WORK.

Construction Notes.

ANALYTICAL AND APPLIED CHEMISTRY.

I. Year.

MATHEMATICS.

Euclid, algebra, plane trigonometry.

DRAWING.

Copying from the flat, lettering.

Model drawing.

CHEMISTRY.

General principles of chemistry.

The elements and their classification.

Special study of the non-metals.

Laboratory work.

MINERALOGY.

Introductory course.

Laboratory work.

ELECTRICITY.

Magnetism, electrostatics.

Electromagnetism, current electricity.

Wiring and distribution.

Introductory laboratory course.

II. Year.

CHEMISTRY.

The metals and their salts.

Alkali manufacture.

Building materials, mortars and cements.

Glass and pottery.

Water and its purification.

Organic chemistry.

Elementary physical chemistry.

Laboratory work in quantitative and qualitative analysis.

MINERALOGY.

Blowpipe practice.

Determination of Minerals.

GEOLOGY.

Physical geography, palaeontology and geology.

METALLURGY.

Iron and steel.

PHYSICS.

Optics. . .

Hydrostatics.

Laboratory work.

ELECTRICITY.

Electrical measurement, lectures and laboratory work.

GERMAN.

III. Year.

CHEMISTRY.

Thermochemistry, fuels and combustion.

Destructive distillation.

Coal tar products.

Explosives.

Organic chemistry.

Electrochemistry.

Laboratory work.

ELECTRICITY.

Dynamos and motors.

Arc and incandescent lamps.

Power transmission.

GEOLOGY.

Economic geology.

MINERALOGY.

Determinative mineralogy.

METALLURGY.

Gold, silver, nickel, copper, lead.

Assaying.

BIOLOGY.

GERMAN.

CHEMICAL ENGINEERING.

I. Year.

MATHEMATICS.

Euclid, algebra, plane trigonometry.
Analytical plane geometry.

DRAWING.

Copying from the flat, lettering, graphics.
Descriptive geometry in its application to plane-sided solids, orthographic (including isometric), and oblique projection.

SURVEYING.

Application of trigonometry and principles of measurement (lectures only).

MECHANICS.

Statics and dynamics (with special reference to structures and machines).

CHEMISTRY.

General principles of chemistry.
The elements and their classification.
Special study of the non-metals.
Laboratory work.

MINERALOGY.

Introductory course.
Laboratory work.

ELECTRICITY.

Magnetism, electrostatics.
Electromagnetism, current electricity.
Wiring and distribution.
Introductory laboratory course.

II. Year.

MATHEMATICS.

Differential and integral calculus.

DRAWING.

Subjects of first year continued.

Coloring and shading applied in construction drawing.

Descriptive geometry in its application to solids bounded by curved surfaces; shades and shadows, and perspective.

Machines and structures. (Drawings made from both copies and original notes.)

CHEMISTRY.

Thermochemistry, fuels and combustion.

Destructive distillation.

Coal tar products.

Explosives.

Elementary physical chemistry.

Laboratory work.

MECHANICS.

Statics and dynamics (pure and applied).

Theory of mechanism.

Strength and elasticity of materials.

Materials of construction.

Methods and processes.

METALLURGY.

Iron and steel.

PHYSICS.

Optics.

Hydrostatics.

Laboratory work.

ELECTRICITY.

Electrical measurements, lectures and laboratory work.

VACATION WORK.

Construction Notes.

III. Year.

DRAWING.

Subjects of previous year continued.

CHEMISTRY.

Thermochemistry, fuels and combustion.

Destructive distillation.

Coal tar products.

Explosives.

Organic chemistry.

Electrochemistry.

Laboratory work.

METALLURGY.

Gold, silver, nickel, copper, lead.

MECHANICS.

Subjects of previous year continued.

Applied mechanics.

Mechanics of machinery, machine design, thermodynamics and theory of steam engine, hydraulics.

Application of principles to practical problems connected with the design, construction and testing of various prime motors and machines.

Experimental work in engineering laboratory.

ELECTRICITY.

Lectures and laboratory work on electromagnetism, applied electromagnetism.

Direct and alternating current.

Dynamo-electric machinery.

ORIGINAL DESIGNS.

Engine and machine design.

GERMAN.

VACATION WORK.

Construction Notes.

VACATION WORK.

The engineering and architectural students are required to make, during the vacation, full and clear notes of various constructions that may fall under their notice.

The value of the construction notes is taken into account in determining standing at the next annual examination.

THE FOURTH OR POST GRADUATE YEAR.

After the completion of the general three years' course in any department, students are recommended to take up the special work of the fourth year, leading to the degree of Bachelor of Applied Science in the University of Toronto. It is only by so doing that full advantage can be taken of the laboratory equipment of the School. The fourth year enables students to continue under certain restrictions the study of subjects in which they take special interest and is the means adopted in the School of Practical Science of affording them the advantage of elective and special studies.

To be admitted to the fourth year a candidate must be a graduate of the School of Practical Science or an under-graduate of the standing of the fourth year in the University of Toronto in the honour Department of Chemistry- and Mineralogy.

The subjects of study in the fourth year are arranged in the following groups and sub-divisions.

- A. { Astronomy.
Geodesy and Metrology.
- B. { Architecture.
Strength and Elasticity of Materials.
Hydraulics.
Thermodynamics and Theory of Heat Engines.
Electricity and Magnetism.
Electrochemistry.
- C. { Industrial Chemistry.
Sanitary and Forensic Chemistry.
Electrochemistry.
Inorganic and Organic Chemistry.
- D. { Mineralogy and Geology.
Metallurgy and Assaying.

Each student will be required to confine his studies during the session to two subdivisions of one of the above groups.

The subdivision "Inorganic and Organic Chemistry" will be obligatory on all students who select group C.

A student is liable to be called on to assist in any of the experimental and practical work in the group which he has selected, although it may not belong to his special subjects.

Candidates are required to notify the Registrar of the school in writing of their intention to take the fourth year work at least one week before the opening of the session, and to inform him at the same time of the subjects which they propose to take. These subjects will be submitted to the Council for approval at the beginning of the session, and no student will be permitted to take any subject not so approved.

Undergraduates of the University of Toronto of the standing of the fourth year in the Honour Department of Chemistry Mineralogy may be admitted as students of the fourth year in the groups C and D.

Candidates will be required to show a good working acquaintance with translation from either French or German. This will be tested by their ability to translate extracts from scientific works or periodicals not previously specified.

PASS AND HONOURS.

Total marks assigned to fourth year 900
Subdivided as follows:—

Work (reckoned in hours) 540 marks

Records (notes, drawings, etc)... .. 360 marks

FOR PASS :

The minimum percentages are:—

Work, 75 per cent. 405 marks

Records, 50 per cent. 180 marks.

And two-thirds of the total marks assigned ... 600 marks

FOR HONOURS :

In deciding the allotment of honours the whole academic record of the candidate will be taken into consideration, but no honours will be granted unless the candidate shall have received a special recommendation from the member or members of Council under whose supervision his fourth year work has been done.

Honours granted will be mentioned in the certificate required under clause 2 of the statute of the University of Toronto respecting the degree of B.A.Sc.

The above certificate will not be granted to students who have been absent without leave of the Council from more than 10 per cent. of the lectures and practical work of either term of the session.

Courses of reading will be indicated in connection with subjects of study.

The above regulations have been approved by the Senate of the University of Toronto in so far as they affect the degree of B.A.Sc.

DEGREE OF B.A., Sc.

Candidates who have fulfilled the requirements of the Fourth Year in the School of Practical Science are eligible for the degree of Bachelor of Applied Science in the University of Toronto in accordance with a Statute passed by the Senate in 1892, which, with the amendments since made, is as follows :

By the Senate of the University of Toronto.

Be it enacted :

That the Degree of Bachelor of Applied Science (B.A.Sc.) be hereby established to be granted subject to the following conditions and regulations :

1. Candidates for the said degree shall hold the diploma of the School of Practical Science in any one of the regular courses of the said School, or shall be of the standing of the fourth year in the Honour Department of Chemistry and Mineralogy in the University of Toronto.
2. They shall have fulfilled the conditions relating to the Fourth or Post-Graduate year in the School of Practical Science and shall present certificates of having done so to the Registrar of the University. Honours may be granted with such certificates by the Faculty of the School.

3. Each candidate shall prepare a thesis based on the results of his Fourth Year work in the said School of Practical Science for the approval of the University examiners. This thesis must be sent to the Registrar not later than the thirty-first day of March, and is to be accompanied by all necessary drawings, specifications, tables and estimates. To pass in the thesis a candidate must obtain fifty per cent. and to take honors seventy-five per cent. of the marks assigned.
4. Candidates will be required to select two sub-divisions in any one of the following groups, and to pass such written and oral examinations on the subjects selected as may be prescribed by the University examiners.
 - A. { Astronomy.
Geodesy and Metrology.
 - B. { Architecture.
Strength and Elasticity of Materials.
Hydraulics.
Thermodynamics and Theory of Heat Engines.
Electricity and Magnetism.
Electrochemistry.
 - C. { Industrial Chemistry.
Sanitary and Forensic Chemistry.
Electrochemistry.
Inorganic and Organic Chemistry.
 - D. { Mineralogy and Geology.
Metallurgy and Assaying.

The sub-division "Inorganic and Organic Chemistry" will be obligatory on all candidates who select Group C.

To pass in each subject thirty-three per cent. and to take honors sixty-six per cent. of the marks assigned will be required.

5. The degree with honours will be conferred on candidates who obtain three out of the four honors possible, viz :

Certificate with honours (cl. 2.)

Thesis with honours (cl. 3.)

Honours in each subject of examination (cl. 4.)

6. Candidates are required to send to a Registrar of the University at least three weeks before the commencement of the annual or supplemental examinations an application for examination according to a printed form to be obtained from the Registrar, and such application must be accompanied by a fee of ten dollars.
7. The annual examinations for the degree shall be held in April, and the supplemental examinations in September.
8. The fee for the degree shall be ten dollars and shall be paid to the Registrar not later than the day preceding the first day of the annual examinations.
9. The ordinary time for conferring the degree shall be at the University commencement in June. The degree may be conferred at any meeting of the Senate.
10. The thesis, drawings, and other papers accompanying them, shall be the property of the School of Practical Science.
11. In case any change shall be made in the conditions referred to in the second clause, such change shall be submitted to the Senate, and shall have no force so far as the said clause is concerned unless approved by resolution of the Senate.

SUBSEQUENT PROFESSIONAL DEGREES.

The attention of graduates is directed to the following statute, passed by the Senate of the University of Toronto in 1896 :

By the Senate of the University of Toronto.

Be it enacted :

- I. That all previous Statutes of the University relating to degrees or diplomas in Engineering be repealed.
- II. That the following degrees be hereby established, viz., Civil Engineer (C.E.), Mining Engineer (M.E.), Mechanical Engineer (M.E.), Electrical Engineer (E.E.).

III. That the following be the conditions and regulations governing the conferring of the said degrees.

1. A candidate for one of the said degrees shall hold the diploma of the School of Practical Science and the degree of Bachelor of Applied Science of the University of Toronto, except in the case provided for in clause 11 hereunder.
2. He shall have spent at least three years after receiving the degree of Bachelor of Applied Science in the actual practice of the branch of engineering wherein he is a candidate for a degree.
3. Intervals of non-employment or of employment in other branches of engineering shall not be included in the above three years. It shall not be necessary that the several periods requisite to make up the said three years be consecutive.
4. Satisfactory evidence shall be submitted to the University examiners as to the nature and length of the candidates' professional experience for the purposes of clauses 2 and 3.

The Examiners shall satisfy themselves by oral or written examinations in regard to the candidate's experience and competence.

5. The candidate shall prepare an original thesis on some engineering subject in the branch in which he wishes a degree; the said thesis to be accompanied by all necessary descriptions, details, drawings, bills of quantities, specifications and estimates.

The candidates may be required at the option of the Examiners to undergo an examination in the subject of this thesis.

6. Notice in writing shall be sent to the Registrar not later than the first day of February, informing him of the degree to which the candidate wishes to proceed and of the title of his proposed thesis for the approval of the Senate.

7. The evidence under clause 4, and the thesis, with accompanying papers, described in clause 5, shall be sent to the Registrar not later than the first day of April.
8. The candidate shall be required to present himself for examination in the month of April at such time as may be arranged by the Registrar.
9. The fee for any one of the said degrees shall be twenty dollars, and shall be paid to the Bursar not later than the first day of April.
10. The thesis, drawings, and other papers submitted under clause 7 shall become the property of the School of Practical Science.
11. Candidates who graduated from the School of Practical Science before June, 1895, shall not be required to hold the degree of Bachelor of Applied Science.
For further particulars apply to the Registrar of the University of Toronto.

For the better carrying out of the provisions of the above statute the following statute constituting the Board of Examiners for professional degrees in Engineering was passed by the Senate on December 14th, 1900.

By the Senate of the University of Toronto.

Be it enacted :

1. That the Examiners for the degrees of Civil Engineer (C.E.), Mining Engineer (M.E.), Mechanical Engineer (M.E.), and Electrical Engineer (E.E.), be appointed at least twelve months in advance of the date of the examinations for which their services are required.
2. That the said Examiners constitute the Board of Examiners for degrees in Engineering.
3. That the members of the Board shall select one of their number to act as chairman within one month from the date of their appointment.

4. That candidates for examination applying to the Registrar for information respecting the nature or details of the examinations for the said degrees, shall be directed by him to communicate with the chairman of the said Board, who shall forward to the candidates either directly or through the Registrar the decision of the Board.
5. That the chairman of the said Board shall keep a record book in which he shall enter the minutes of the proceedings of the Board. He shall also keep a file in book form of all correspondence with candidates for examination and other official correspondence; and shall at the close of the examinations transmit to the Registrar a copy of the said minutes and correspondence.
6. That at the close of the examinations, the Board shall forward a report of the results to the Registrar for transmission to the Senate. The report shall be signed by the Examiners or by the Chairman of the Board on their behalf.
7. That the Registrar shall furnish each Examiner on his appointment with a copy of this statute and a copy of the statute respecting degrees in Engineering.

Extract from the Provincial Act Respecting Land Surveyors and Survey of Lands. (R.S.O.)

“10—(2) Any person serving as an apprentice as hereinafter provided, may, with the permission of the Board of Examiners, attend the Ontario School of Practical Science, or any school, college or university, the course of study which is in the opinion of the Board sufficiently similar to that in the Ontario School of Practical Science, for the purpose of taking any course of study which includes any subject required for the final examination for admission to practice as a land surveyor, but the total period of such apprenticeship and of such course of study shall not exceed the period of four years from the date of the articles of apprenticeship as above mentioned, and not less than three years

of the said period of four years shall be passed in the actual service of a practicing Ontario Land Surveyor.

“14. The privilege of a shorter term of apprenticeship shall also be accorded to any graduate of the Royal Military College at Kingston and of the Ontario School of Practical Science in civil or mining engineering, or of the McGill College, Montreal, in civil or mining engineering, and such persons shall not be required to pass the preliminary examinations hereinbefore required for admission to apprenticeship with a land surveyor, but shall only be required to serve under articles with a practicing land surveyor duly filed as required by section 17 of this Act, during twelve successive months of actual practice, after which, on complying with all the other requirements, he may undergo the examination by the Act prescribed.

“(2) Such person at any time during his examination may, with the permission of the Board of Examiners, attend the Ontario School of Practical Science, or any school, college or university, the course of study of which is, in the opinion of the Board, sufficiently similar to that in the Ontario School of Practical Science, for the purpose of taking any course of study which includes any subject required for the final examination for admission to practice as a land surveyor, but the total period of such apprenticeship, and of such course of study, shall not exceed the period of two years from the date of the articles of apprenticeship as above mentioned, and not less than twelve months of the said period of two years shall be passed in the actual service of a practicing Ontario Land Surveyor.”

Extract from the Dominion Lands Act.

“Every graduate in surveying of the Royal Military College of Canada, and every person who has followed a regular course of study in all branches of education required by this Act for admission as a Dominion Land Surveyor, through the regular sessions, for at least two years in any College or University where a complete course of theoretical and practical instruction in surveying is organized, and who has thereupon received from Col-

lege or University a Diploma as Civil Engineer, shall be exempt from serving three years as aforesaid, and shall be entitled to examination after one year's service under articles with a Dominion Land Surveyor, at least six months of which service has been in the field, on producing the affidavit required by the next preceding clause as to such service; but it shall rest with the Board to decide whether the course of instruction in such College or University is that required by this clause."

The attention of the candidates for the Diploma of D.T.S. given by the Dominion Board of Examiners, is directed to the facilities afforded for preparation in the School.

Extract from the Ontario Architects Act.

"Any student who has matriculated in Arts in any University in His Majesty's dominions, or in the Ontario School of Practical Science, shall not be required to pass the preliminary examinations.

"23. Any person who applies for admission to registration as an architect after the coming into force of this Act, shall be not less than twenty-one years of age, shall have served as a student not less than five years with a principal or principals entitled to register under this Act, or with any other principal or principals approved by the council, and have passed such qualifying examinations as may be required by this Act.

"24.—(3) Any person who has graduated from the Ontario School of Practical Science shall be required to serve only three years as a student, one of which three years may be served during the vacation of such school.

"(4) Upon and after the passing of this Act, students shall serve such term as is required to be served by the provisions of this Act, under indenture to be a registered architect, which indenture and any assignment thereof with affidavit of execution thereto attached shall be filed with the Registrar upon payment of such fees as the council may by regulation direct.

SYNOPSIS OF THE COURSES OF LECTURES AND PRACTICAL INSTRUCTION.

Subjects Taught by the Faculty of the School.

Subjects.	Instructors.
Organic and Inorganic Chemistry, Applied Chemistry, Assaying.	W. H. Ellis, M.A., M.B., Professor. J. W. Bain, B.A.Sc., Lecturer. E. G. R. Ardagh, B.A.Sc., Demonstrator. E. Wade, Grad. S.P.S. Fellow. S. Dushman, B.A. Fellow.
Geology, Metallurgy, Mining and Ore-dressing, Milling, German,	A. P. Coleman, M.A., Ph. D., Professor. G. R. Mickle, B.A., Lecturer. J. G. McMillan, B.A.Sc., Fellow.
Dynamics, Strength of Materials, Theory of Construction, Machine Design, Theory of Mechanism, Compound Stress, Hydraulics, Thermodynamics, and Theory of the Steam Engine,	J. Galbraith, M.A., LL.D., Professor. J. McGowan, B.A., B.A.Sc., Lecturer. R. W. Angus, B.A.Sc., Lecturer. H. G. McVean, B.A.Sc., Demonstrator. P. Gillespie, B.A.Sc., Demonstrator.
French, Statics, Drawing, Architecture, Plumbing, Heating and Ventila- tion, Mortars and Cements,	C. H. C. Wright, B.A.Sc., Professor. J. R. Cockburn, B.A.Sc., Demonstrator. A. E. Gibson, B.A.Sc., Fellow. J. A. McFarlane, B.A.Sc., Fellow. M. R. Riddell, Grad., S.P.S., Fellow.
Brick and Stone Masonry, Surveying, Geodesy and Astronomy, Spherical Trigonometry, Least Squares, Descriptive Geometry,	L. B. Stewart, D.T.S., Professor. J. L. R. Parsons, B.A., Fellow. N. D. Wilson, B.A.Sc., Fellow.

Subjects taught by the Faculty of the School.—*Continued.*

Subjects.	Instructors.
Electricity, Magnetism, Dynamo-Electric Machinery, Mechanics of Machinery,	T. R. Rosebrugh, M.A., Professor. H. W. Price, B.A.Sc., Demonstrator. H. G. Smith, B.A.Sc., Fellow. G. J. Manson, Grad., S.P.S., Fellow.
Sound, Light, Heat, Hydrostatics,	G. R. Anderson, M.A., Lecturer.

Subjects Taught by the Faculty of the University.

Algebra, Euclid, Plane Trigonometry, Analytical Geometry, Calculus, Astronomy,	Alfred Baker, M.A., Professor. A. T. DeLury, B.A., Associate Professor. J. C. Fields, B.A., Ph.D., Associate Professor. M. A. McKenzie, M.A., Associate Professor. J. G. Parker, B.A., Fellow.
Biology, Mineralogy, Petrography, Chemistry,	R. Ramsay Wright, M.A., LL.D., Professor. W. R. Lang, D.Sc., Professor. T. L. Walker, M.A., Ph.D., Professor. W. L. Miller, B.A., Ph.D., Associate Professor. W. Parks, B.A., Ph.D., Lecturer. F. B. Kenrick, M.A., Ph.D., Lecturer. F. B. Allan, M.A., Ph.D., Lecturer. W. H. Collins, B.A., Class Asst. H. L. Kerr., B.A., Class Assistant.

DRAWING AND SURVEYING.

DRAWING.

Model drawing, machines and structures, map and topographical drawing, designs and estimates, graphical calculations.

Descriptive geometry, including practical geometry (plane and solid); orthographic, oblique and perspective projections; intersection of surfaces, shades and shadows, stone cutting, theory of mechanism, theory of mapping, etc.

Text Books and Books of Reference.

Angel—Plane and Solid Geometry.

Binn —Orthographic Projection.

Church—Descriptive Geometry.

Davidson—Projections.

Low—Machine Drawing and Design.

Millar—Descriptive Geometry.

MacCord—Lessons in Mechanical Drawing.

Reinhardt—Lettering for Draughtsmen, Engineers and Students.

Vere Foster—Copy Book No. 10.

Warren—Stone Cutting.

Worthen—Topographical Drawing.

SURVEYING AND LEVELLING.

LAND SURVEYING.

Chain Surveys.

Compass and theodolite surveys.

Method of keeping field notes.

Determination of heights and distances.

Plotting.

LEVELLING.

Longitudinal and cross sections.

Plotting.

SETTING OUT.

Setting out straight lines and curves.

Setting out levels.

MENSURATION.

Lines, surfaces and solids.

Timber, masonry, iron and earthwork.

Capacity of reservoirs, etc.

Lectures are also given on the distinctive features of Mining and Hydrographic Surveying.

Text Books.

Brough—Mine Surveying.

Gillespie—Higher Surveying.

Henck or Searle—Railway Curves.

Johnson—Theory and Practice of Surveying.

Murray—Manual of Land Surveying.

PRACTICAL ASTRONOMY AND GEODESY.

ORDINARY COURSE.

The work included in this course is sufficient to fulfill the requirements of the final examination for Ontario and Dominion land surveyors.

In astronomy the principal subjects are the determination of time, latitude and azimuth, and the general principles of the method of determining longitude. Practical instruction is given in the methods of taking observations.

In geodesy all surveys, computations and methods of map construction are based upon the requirements of secondary triangulation.

ADVANCED COURSE (Fourth Year).

The work of this course is intended to fulfill the requirements of the final examinations for Dominion Topographical Surveyors. It is distinguished from the work of the ordinary course not so much by the subjects as by the degree of refinement to which the investigations are carried.

In geodesy the requirements of primary triangulation are kept in view.

Text Books.

- Chauvenet—Spherical and Practical Astronomy.
 Doolittle—Practical Astronomy.
 Gillespie—Higher Surveying.
 Gore—Elements of Geodesy.
 Green—Spherical and Practical Astronomy.
 Helmert—Hohere Geodasie.
 Nautical Almanac, 1906.

APPLIED MECHANICS.

STATICS.

The calculation of the stresses in framed structures, solid and riveted beams, arches, etc. Both graphical and analytical methods used.

THEORY OF THE STRENGTH AND ELASTICITY OF MATERIALS.

THEORY OF COMPOUND STRESS.

DESIGNING OF STRUCTURES in timber, iron and masonry-arches, retaining walls, roofs, bridges, etc.

DYNAMICS.

- Representation and measurements of forces and motions.
 Principles of work and energy.
 Efficiency of machine. Friction.
 Transmission of energy—belts, shafts, crank and connecting rod, etc.
 Fly-wheels, governors.
 Balancing of machinery, etc., etc.

STRENGTH OF THE PARTS OF MACHINES.

MACHINE DESIGN.

HYDRAULICS.

Discharge of water through orifices, notches, etc. Flow in pipes and open channels. Sewerage, water-works, water-power, water-wheels, turbines, pumps, etc.

THERMODYNAMICS AND THEORY OF THE STEAM ENGINE.

Text Books and Books of Reference.

- Baker—Masonry Construction.
Billings—Heat and Ventilation.
Bodmer—Hydraulic Motors, Turbines, etc.
Cambria Steel.
Carnegie Pocket Companion.
Carpenter—Heating and ventilation of Buildings.
Carpenter—Experimental Engineering.
Du Bois—Graphic Statics.
Du Bois—Strains in Framed Structures.
Foster—Electrical Engineers' Pocket Book.
Gerhardt—House Drainage and Sanitary Plumbing.
Greene—Trusses and Arches.
Innes—Centrifugal Pumps, Turbines and Water Motors.
Johnson—Modern Frame Structures.
Johnson—Materials of Construction.
Kennedy—Mechanics of Machinery.
Kent—Mechanical Engineer's Pocket Book.
Ketchum—Steel Mill Buildings.
Kidder—Building Construction and Superintendence.
Kidder—Architect and Builder's Pocket Book.
Lanza—Applied Mechanics.
Low and Bevis—Machine Drawing and Design.
Low—Machine Drawing.
Merriman and Jacoby—Roofs and Bridges.
Merriman—Mechanics of Materials.
Merriman—Hydraulics.
Patton—Foundations.
Peabody—Thermodynamics.
Peabody—Steam Tables.
Rafter and Baker—Sewage Disposal in the United States.
Rankine—Applied Mechanics.

- Reuleaux—The Constructor.
 Santo Crimp—Sewage Disposal Works.
 Shann—Elementary Treatise on Heat.
 Trautwine—Engineer's Pocket Book.
 Unwin—Elements of Machine Design.
 Unwin—Testing of Materials of Construction.
 Von Ott—Graphic Statics.
 Williamson—Elasticity.

THEORY OF MECHANISM.

Principles of the transmission of motion without reference to force.

Pitch surfaces, spur wheels, bevel wheels, skew-bevel wheels, trains of wheelwork, teeth of wheels, cams, cranks, eccentrics, links, bands and pulleys, hydraulic connections, frictional gearing, link motion for slide valves, etc.

Text Books and Books of Reference.

- Auchincloss—Valve and Link Motions.
 Goodeve—Elements of Mechanism.
 Halsey—Slide Valve Gears.
 Kennedy—Mechanics of Machinery.
 Rankine—Machinery and Millwork.
 Reuleaux—Kinematics and Machinery.

ELECTRICITY.

Instruction is given in this subject by a course of lectures and also by work in the laboratories of the School.

The work comprises :—

INTRODUCTORY COURSE.

Lectures treating the principles of magnetism, electrostatics, electromagnetism and current electricity in an elementary manner.

Lectures on electric circuits, wiring and distribution by feeders.

Short laboratory course.

ELECTRICAL MEASUREMENTS.

Lectures and laboratory work on electrical measurements; including various cases of resistance measurement, comparison of standards of resistance, measurement of electromotive force, standard cells, current measurements, applications to calibration of electrical measuring instruments, photometry and properties of incandescent lamps, location of faults.

DYNAMO ELECTRIC MACHINERY.

Electromagnetism and theory of direct current dynamo-electric machinery.

Laboratory work on the magnetic field of the earth, tangent galvanometer, induction and hysteresis in iron, Hopkinson's Law, ballistic galvanometer and condenser, arc lamps, fusing currents, insulation and disruption tests of dielectrics, brush contact resistance, magnetization and load curves, characteristics of shunt, series and compound wound dynamos, motor characteristics, brake test, stray power loss and efficiency, armature reaction, dispersion coefficient, temperature rise.

Armature windings, thermal and electro magnetic relations, design.

Alternating current machinery and circuits. Laboratory work including measurement of inductance, calibration of A. C. instruments, wave tracing, phase relations, transformer impedance, core loss, efficiency and regulation, alternator characteristics, motor tests, measurement of power in polyphase circuits, constant current transformer, series A. C. arc lamps, photometry of incandescent and Nernst lamps.

ADVANCED COURSE (Fourth Year).

Applications of vectors and complex quantities in the theory of alternating currents, the alternator single phase and polyphase. Theory of the synchronous motor, rotary converter and induction motor. The transformer and combination of transformers. Theory of polyphase power transmission. Operation of long lines considering distributed capacity, resistance and inductance. Experimental inspection of calculations and determination of characteristics of alternator synchronous motor, single phase and polyphase induction motors, and other practical problems.

The above courses may all be taken by students in Mechanical and Electrical Engineering who take the "electrical option." Shorter courses are also arranged for students in other departments.

Text Books and Books of Reference.

- Bedell and Crehore—Alternating Currents.
- Bedell—Principles of the Transformer.
- Bell—Electric Power Transmission.
- Carhart and Patterson—Electrical Measurements.
- Ewing—Magnetic Induction in Iron.
- Fleming—Alternate Current Transformers, Vols. I. and II.
- Franklin and Williamson—Alternating Currents.
- Hooper and Wells—Electrical Problems.
- Jackson—Electromagnetism and the Construction of Dynamos.
- Kempe—Electrical Testing.
- Loudon and McLennan—Practical Physics.
- Parshall and Hobart—Armature Winding.
- Parshall and Hobart—Electric Generators.
- Raymond—Alternating Current Engineering.
- Ryan, Norris and Hoxie—Text book of Electrical Machinery.
- Steinmetz—Elements of Electrical Engineering.
- Steinmetz—Alternating Current Phenomena.
- Stewart and Gee—Practical Physics.

- Thompson, S. P.—Dynamo Design.
 Thompson, S. P.—Elementary Electricity and Magnetism.
 Thompson, S. P.—Dynamo Electric Machinery.
 Thompson, S. P.—Polyphase Currents.
 Wiener—Dynamo Electric Machines.

ARCHITECTURE.

HISTORY OF ARCHITECTURE.

- Egyptian, Assyrian and Persian.
 Classic.
 Romanesque and Byzantine.
 Gothic.
 Renaissance.

ORDERS OF ARCHITECTURE.

HISTORY OF ORNAMENT.

PRINCIPLES OF DECORATION.

PRINCIPLES OF PLANNING.

ELEMENTS OF DESIGN.

Text Books and Books of Reference.

- Fergusson—History of Architecture.
 Fletcher—A History of Architecture.
 Gwilt—Encyclopaedia of Architecture.
 Leeds—Orders of Architecture.
 Osborne—Art of House Planning.
 Owen Jones—Grammar of Ornament.
 Racinet—L'Ornement Polychrome.
 Rickman—Gothic Architecture.
 Sharpe—Seven Periods of Church Architecture.
 Smith, T. Roger—Classic and Early Christian Architecture.
 Smith, T. Roger—Gothic and Renaissance.
 Stratham—Architecture for General Readers.
 Sturgis—European Architecture.
 Vignole—The five Orders of Architecture.

MATHEMATICS.

The pure Mathematics included in this course is taught by the Faculty of Arts.

EUCLID.

ALGEBRA.

PLANE TRIGONOMETRY.

ANALYTICAL GEOMETRY.

CALCULUS.

PLANE ASTRONOMY.

Text Books and Books of Reference.

Hall and Knight—Plane Trigonometry.

Loomis—Calculus.

Mackay—Elements of Euclid.

Newcombe and Holden—Astronomy.

Osborne—Calculus.

C. Smith—Conic Sections.

Todhunter—Algebra.

Todhunter—Spherical Trigonometry.

PHYSICS.

OPTICS.

Laws of reflection and refraction.

Optical constants of mirrors, lenses, etc.

Theory of optical instruments.

HYDROSTATICS.

Laws of fluids at rest.

Hydrostatic machines.

Buoyancy.

HEAT.

Thermometry and calorimetry.

Coefficients of expansion.

Mechanical equivalent.

ACOUSTICS.

Mode of propagation and velocity of sound.

Laws of vibrating bodies.

Architectural acoustics.

Text Books and Books of Reference.

Edser—Light.

Edser—Heat.

Glazebrook—Heat.

Glazebrook—Light.

Glazebrook—Hydrostatics.

Tyndall—Sound.

Hastings and Beach—General Physics.

Deschanel—Principles of Physics.

Ames & Bliss—Manual of Experiments in Physics.

Lummer—Photographic Optics.

Preston—Theory of Heat.

Preston—Theory of Light.

Poynting and Thomson—Sound.

CHEMISTRY.

COURSES IN THE SCHOOL OF PRACTICAL SCIENCE.

Inorganic and Organic chemistry.

Applied chemistry.

The chemistry of combustion, fuels, furnaces, artificial lighting, explosives, photography, building materials, water, air, sewage, chemical manufactures.

Laboratory work, including technical analysis, the analysis of food, water and air, and toxicology.

COURSES IN THE UNIVERSITY OF TORONTO.

Organic chemistry.

Chemical theory.

Physical chemistry.

Text Books and Books of Reference.

- Allen—Commercial Organic Analysis.
Arnold—Steel Works Analysis.
Beilstein—Organic Chemistry.
Beringer—Text Book of Assaying.
Blair—Chemical Analysis of Iron and Steel.
Blount—Electro-Chemistry.
Bloxam—Chemistry.
Bloxam and Blount—Chemistry for Engineers and Manufacturers.
Blyth, A. W.—Poisons.
Blyth, A. W.—Foods.
Bolley—Handbuch der Chemischen Technologie.
Dammer—Handbuch der Anorganischen Chemie.
Douglas and Johnston—Qualitative Analysis.
Fresenius—Qualitative and Quantitative Analysis.
Furman—Manual of Practical Assaying.
Hempel—Gas Analysis.
Holleman—Inorganic Chemistry.
Holleman—Organic Chemistry.
Jones—Practical Chemistry.
Lord—Notes on Metallurgical Analysis.
Lunge—Sulphuric Acid and Alkali.
Lunge—Coal Tar and Ammonia.
Meyer—History of Chemistry.
Miller—Quantitative Analysis for Mining Engineers.
Miller and Smale—Qualitative Analysis.
Morgan—Elements of Physical Chemistry.
Newth—Manual of Chemical Analysis.
Noyes—Qualitative Chemical Analysis.
Ostwald—Lehrbuch der Allgemeinen Chemie.
Ostwald—Outlines of General Chemistry.
Ostwald—Principles of Inorganic Chemistry.
Pattison Muir—Thermochemistry, Elements of.
Perkin—Qualitative Analysis.
Perkin and Kipping—Organic Chemistry.
Poole—Calorific value of Fuels.
Post—Chemisch-technische Analyse.

- Remsen—Inorganic and Organic Chemistry.
 Richter—Inorganic and Organic Chemistry.
 Roscoe and Schorlemmer—Treatise on Chemistry.
 Sadtler—Organic and Applied Chemistry.
 Sutton—Volumetric Analysis.
 Thorp—Outlines of Industrial Chemistry.
 Thorpe—Dictionary of Applied Chemistry.
 Thorpe—Quantitative Analysis.
 Treadwell—Lehrbuch der Analytischen Chemie.
 Wagner—Chemical Technology.
 Walke—Lectures on Explosives.
 Watt—Dictionary of Chemistry.
 Wiechman—Sugar Analysis.
 Winkler—Gas Analysis.

ELECTROCHEMISTRY.

Text Books and Books of Reference.

- Arrhenius—Lehrbuch der Elektrochemie.
 Blount—Electro chemistry.
 Borchers—Electric Smelting and Refining.
 Dolezalek—The Accumulator.
 Elbs—Electrolytic Preparations.
 Jaeger—Normalelemente.
 Le Blanc—Electro chemistry.
 Lehfelddt—Electro chemistry.
 Liebetanz—Calciumcarbid and Acetylen.
 Lorenz—Elektrochemisches Praktikum.
 Luepke—Elements of Electro chemistry.
 Minet—Gewinnung des Aluminiums.
 Moissan & Lenher—The Electric Furnace.
 Oettel—Electrochemische Übungsaufgaben.
 Wade—Secondary Batteries.

MINERALOGY, GEOLOGY AND METALLURGY.

1. Mineralogy and Geology.
 Geology and Palaeontology.
 Mineralogy and crystallography.
 Petrography.

Physical geography.

Blowpipe analysis.

Determinative mineralogy.

2. Mining and Metallurgy.

Mining Geology.

Ore dressing.

Metallurgy of iron and steel.

Metallurgy of gold, silver, copper, nickel, etc.

Assaying.

Milling.

Text Books and Books of Reference.

Chapman or Brush—Mineral Tables.

Chapman—Mineralogy and Geology of Canada.

Crosby—Determination of Minerals.

Dana—Manual of Geology.

Dana—Minerals and how to study them.

Dana—Text Book of Mineralogy.

Furman—Assaying.

Geikie—Text Book of Geology.

Harker—Petrography for Students.

Howe—Metallurgy of Steel.

Ihlseng—Manual of Mining.

Kemp—Handbook of Rocks.

Kemp—Ore Deposits of the United States.

Kuhnhardt—Ore Dressing.

Nicholson—Palaeontology.

Peters—Modern Copper Smelting.

Phillips—Ore Deposits.

Phillips and Bauerman—Elements of Metallurgy.

Plattner—Manual of Blowpipe Analysis.

Roberts-Austen—Matallurgy.

Rose—Metallurgy of Gold.

Rosenbusch—Petrography.

Williams—Crystallography.

THERMODYNAMIC LABORATORY.

The thermodynamic laboratory contains a 50-horse power Brown engine. The engine was constructed especially for experimental investigations, and the cylinder has steam jackets on the body and both ends, arranged so that any or all of them may be used at once, or that all may be shut off as desired. The exhaust steam may be passed through a feed-water heater to the open air, or to a jet condenser or to a Wheeler surface condenser, the latter of which was kindly presented to the School by the inventor, Mr. F. M. Wheeler, of New York.

A compound Willans has recently been installed as a part of this laboratory. This engine is so arranged that it may be run condensing or non-condensing and it may also be converted into a simple engine if desired, thus allowing considerable latitude in the way of experimental work.

A De Laval turbine has also been placed in the laboratory, and is arranged with two alternative exhausts, directly to the atmosphere and to a surface condenser, suitable nozzles being provided for either purpose.

There are also a Blake circulating pump, a Knowles air pump, and a Blake feed pump, which was a gift of the manufacturers. Several injectors of various types are also available for experimental work and examination.

The steam for the plant is supplied by a Babcock & Willcox boiler, and a Harrison-Wharton boiler.

An Otto gas engine completes the experimental equipment of this laboratory. There are, in addition, the usual measuring instruments required in thermodynamic investigations, among which may be mentioned indicators of various types, gauges, gauge testing apparatus, calorimeters, both throttling and separating, scales, brakes, dynamometers, anemometers, thermometers, a platinum and platino-rhodium thermo-couple, and other instruments.

HYDRAULIC LABORATORY.

This laboratory contains two large steel tanks arranged for the experimental study of the flow of water through orifices and over weirs. Both orifices and weirs may be conveniently changed.

The discharge is measured by two tanks which are filled and emptied alternately by means of four valves operated by a single lever, thus enabling the measuring to be continued for any length of time without interrupting the flow.

The water is supplied by a new centrifugal pump of latest design and construction. This pump is so designed that it will give a discharge of 1,000,000 gallons per 24 hours, or it may be arranged to give half the discharge against double the head. In addition to being useful as a pump to supply water for the hydraulic work it forms an excellent piece of laboratory equipment and is so arranged that experiments may be made on it as to discharge and efficiency under varying conditions of speed and head.

For the work on turbines, etc., a six-inch New American turbine, the gift of the firm of William Kennedy & Sons, Owen Sound, has been set up so that efficiency determinations under different gate openings and heads may be made. In addition to this a thirty-six inch axial impulse turbine, and a Pelton wheel, each being provided with suitable brakes, means of accurately measuring the discharge continuously, and other requirements for experimental work have been installed. There are also three centrifugal pumps, one made by the Morris Machine Works, another which has been kindly presented to the School by the Northey Co., Limited, Toronto, the manufacturers, and a third which has been specially designed and built for a more careful line of experimental work than is possible with the ordinary commercial pump of this class. A dynamometer and other necessary apparatus are provided for adapting these pumps to scientific investigations.

A Venturi meter has also been installed, and apparatus has been arranged so that the discharge from different forms of nozzles, and the frictional losses in elbows, valves, etc., may be determined.

There are the usual measuring instruments, gauges, gauge-testing apparatus, scales, brakes and dynamometers, and a nine-inch McCormick turbine.

STRENGTH OF MATERIALS LABORATORY.

The machines in this department are the following :

An Emery 50-ton machine, built by William Sellers & Co., of Philadelphia, for making tests in tension and compression.

A Riehle 100-ton machine for making tests in tension, compression, shearing and cross-breaking. It will take in posts twelve feet long and beams up to eighteen feet in length.

A Riehle 10-ton universal testing machine.

An Olsen torsion machine for testing the strength and elasticity of shafting. This machine will twist shafts up to sixteen feet in length and two inches in diameter.

A Riehle transverse testing machine of 5,000 pounds capacity adapted to specimens up to 48 inches in length.

A Riehle abrasion machine, for testing the resistance to attrition of stones, brick, etc.

Extensometers of the Bauschinger, Unwin, Marshall and other types, besides a large number of micrometers and scales.

The shop is equipped with a number of high-class machine tools specially fitted for reducing the specimens to the requisite shapes and dimensions with a minimum of hand labor. It is also supplied with the necessary appliances for making ordinary repairs and for making special apparatus for original investigations.

CEMENT TESTING LABORATORY.

This department is fitted with all the usual moulds, gravimeters, tables and tank accommodation necessary in a well equipped laboratory.

In this laboratory there are also the following :

A Riehle 2,000 pounds machine, fitted for either tension or compression.

A Riehle 600-pounds machine fitted for tension only.

An extra large Faija's hot bath apparatus.

METEOROLOGICAL LABORATORY.

In the geodetic and astronomical departments are a 100-foot and a 66-foot standard of length; a 10-foot Rogers comparator, with a graduating attachment; a Kater's pendulum with a vacuum chamber; a Howard astronomical clock and electro-chronograph; a sidereal chronometer, a zenith telescope, a Troughton & Simms 10-inch theodolite, a level trier, thirteen surveyor's transits, ten levels, compasses, sextants, plane tables, micro-meters, planimeters, etc.; and all the necessary field instruments.

ELECTRICAL LABORATORY.

In one section of this laboratory a 20 kilowatt Edison motor furnishes power to drive several continuous current dynamos, series, shunt and compound wound, bipolar and multipolar, a Westinghouse experimental alternator, and a rotary converter when used as a polyphase dynamo. Of direct current motors, besides the one already mentioned, there are a Crocker-Wheeler machine and a 6 h. p. Edison motor, used in the mill-room, but available for testing; besides fan motors. Of alternating current motors there are a General Electric three-phase induction motor and a single-phase induction motor with condenser compensator, besides a special experimental polyphase induction motor of $7\frac{1}{2}$ h. p., by the same company, in which the rotor terminals are all separately accessible. A revolving field for the latter machine makes it a general form of polyphase generator. There are also a Wagner single phase induction motor and a G. E. constant current transformer with a series of six arc lamps. Other types are represented by fan motors. A marble switchboard in this room facilitates connection between different circuits, both locally and for other parts of the building. It is supplied with 110 and 220 volts, direct current, and the same voltage of alternating current of sixty cycles from the city circuits, in addition to the range of supply that may be had from our own generators and storage cells. Four switches which may be connected in any of the circuits, two sets of bus-bars for paralleling, automatic circuit breakers, arc and incandescent lamp circuits; and controlling rheostats are also connected to the switchboard.

Another section is the galvanometer room, in which are ten masonry piers to support instruments in such a way as to be free of vibration.

An adjoining room is the laboratory for advanced work, in which may be mentioned a Kelvin Balance and its rheostat, and an enclosure within which experiments with high voltages may be safely performed. Marble switchboards are placed in this room, and in the galvanometer room to connect with "Chloride" storage batteries of large and small cells located on a galley in a separate room, and apparatus for convenience in standardizing measuring instruments is available.

Among the instruments and apparatus may be mentioned : Numerous D'Arsonval galvanometers of Carpentier, Rowland and other designs, ballistic galvanometers, a Thomson galvanometer, telescopes and scales, divided microfarad condenser, Kempe discharge key, rheostats and proportional arms for Wheatstone bridge and other purposes, slide wire metre bridges, including special bridge for electrolytic resistance; standard resistances, including megohm, 10 ohms, several copies of the ohm, divided ohm, and a complete set of standards from one hundred thousand ohms down to one-thousandth ohm, certified copies of the ohm, divided ohm, and a complete set of standards from the Charlottenburg Reichsanstalt, the latter with oil bath and stirrer; Willoughby potentiometer, standard cells, Clark and Helmholtz, Kohlrausch tubes for measurement of electrolytic resistance, Lippmann electrometers, Kelvin-Mascart electrometer, Nerst electrometer. Besides these are numerous Weston instruments, including wattmeters, voltmeters for direct and alternating currents, ammeters and milliammeters, Thomson and Whitney ammeters and voltmeters, three Siemens electro-dynamometers, Kelvin balance, Kelvin high potential electrostatic voltmeter, and electrostatic multicellular voltmeter; Thomson recording wattmeters (including one for three phase), Shallenberger recording ammeter; lightning arresters, Westinghouse, Stanley, Wagner and Thomson-Houston transformers; a General Electric 10,000 volt testing transformer, and a low voltage 1,000 ampere transformer, high potential condenser, Wimshurst influence machine, Ruhm-

korff coils, Crookes tubes, fluoroscope, Braun tube, wireless telegraph apparatus; Hopkinson permeameter for testing the magnetic qualities of iron, instruments for measuring instantaneous current and voltage in alternating current circuits according to Duncan, Fessenden contact maker, earth inductor, Ayrton and Perry secohmmeter, fixed and variable standards of inductance, double sets of telegraph and telephone apparatus; Lummer-Brodhun and Bunsen photometers with accessories for arc and incandescent light photometry and Hefner standard amylacetate lamp. Voltmeters of all the usual forms, balances, thermometers, portable rheostats and numerous minor appliances complete this portion of the equipment. Among the arc lights may be mentioned the Manhattan, Upton, Adams-Bagnall, Terring, Thomson, Safford and United Electric long burning enclosed arcs, Thomson and other lamps for alternating current, the Ward and Universal (two in series of 110 volt circuits), Thomson-Houston and Ball for series circuits and one the gift of W. A. Turbayne.

MINERALOGICAL LABORATORY.

Provision is made for the introduction of first and second year students to the study of the more important minerals, by actually determining for themselves the chief physical and morphological properties of these minerals. Special laboratories for the study of blow-pipe analysis and determinative mineralogy are available for the use of second and third year students.

Special sets of rocks are arranged for the use of students of the second year, while the more advanced work in this subject is amply provided for in the laboratories for the preparation and study of thin sections of rocks, and for the chemical analysis of minerals and rocks.

Among the collections of specimens is the Ferrier Mineral Collection, arranged systematically and exposed in glass cases so as to be always available for the use of students as a type or reference collection.

ASSAYING LABORATORIES.

Two assaying laboratories are situated in the basement of the Chemistry and Mining building, one has a floor space of 17 ft. x 47 ft. and the other 28 ft. x 37 ft., adjoining each is a room 15 ft. x 11 ft. with the necessary equipment for the wet work in connection with assaying. Common to both laboratories is a balance room furnished with gold balances set on a concrete pier. Each of the laboratories contains a number of melting holes (18 in all) for crucible fusions, various gas furnaces both for crucibles and mufflers, and a large brick muffle furnace.

The furniture comprises lockers for the students, tables for the pulp balances and the necessary cabinets and shelving.

Adjoining the assay laboratories is a preparation room (19 ft. x 13 ft.) which is equipped with a motor, crusher, pulverizer, sample grinder and all the necessary hand pulverizers, screens, etc., for preparing ores for assay.

MILLING PLANT.

A detached building contains the milling and concentrating equipment. It is heated, lighted and supplied with power from the main building and is divided into five rooms. The mill room is 53 ft. by 72 ft. in area and 22 ft. high and the equipment already installed and working consists of a 15 h.p. motor, a five stamp battery erected on concrete foundation, Challenge ore Feeder, amalgamating plates, and a Wilfley table for concentration, a clean-up pan, steel settling tanks, a steel tank suspended from the roof girders to furnish a constant supply of water, and a track with travelling crawl to transport ore. The machinery was furnished and erected by the Wm. Hamilton Manufacturing Co. of Peterboro.

The other rooms in the building are a store room for ore, which also contains a 30 h. p. motor to drive the machinery in the next room which is devoted to crushing of ores, preparatory to their treatment in the milling room, and is equipped with a gyrating crusher of Hadfield's make, a set of Hamilton rolls 16

inches by 12 inches, platform scales for weighing ore and a jib crane, buckets, pulleys, etc., for handling the rock. The area of this room is 476 square feet.

The other two rooms each 17 ft. by 15 ft. will be used for future additions.

The mill-room affords the student an excellent opportunity of studying milling, as all the machines in use are of the same construction as those employed in the best large mills.

Two other rooms have been fitted up with a large brick assay furnace, and a reverberatory furnace for roasting sulphide and arsenical ores; leaching vats for treating ores by the cyanide process, and a chlorination barrel.

PHYSICAL LABORATORIES.

The Optical laboratory is equipped with optical benches and accessories for determining the optical constants of mirrors, lenses and lens combinations and for demonstrating the construction and use of telescopes, field glasses, microscopes, etc. There is also a full equipment of optical instruments including telescopes, microscopes, field glasses, comparators, spectrometers, saccharimeters, refractometer, level tester, photometer, focometer, dynameter, cathetometer and cameras, a Newton lantern for microscopic projection in ordinary and polarized light, and a Thompson lantern for projection by transmission and reflection.

The Hydrostatic laboratory contains a supply of various forms of hydrometers, hydrostatic balances, Jolly balance, Mohr's balance, vacuum pumps, gauges, etc.

The Heat laboratory is equipped with a full supply of calorimeters and accessories for determinations of latent and specific heat. There is also a steam boiler and jacketed tubes for determinations of the expansion of metal rods, air thermometer, apparatus for verification of Boyle's Law and pressure and boiling point curve and for determination of the absolute expansion of mercury, Nichol's modification of Rowland's calorimeter for determination of Mechanical Equivalent of heat, the work being supplied by an electric motor.

The Acoustical laboratory is provided with Sonometer, siren, forks ordinary and electric, Lissajons' and Melde's apparatus, organ pipes of various forms, Manometric flame apparatus and a special equipment for work in Architectural acoustics consisting of torsion chronograph, electro-pneumatic wind chest and standardized organ pipes and other accessories.

CHEMICAL LABORATORIES.

The Chemical laboratories are situated in the western half of the new Chemistry and Mining building on the first and second floors. The rooms are large and well-lighted and are supplied with the usual modern equipment.

The first and second year laboratory for qualitative work has accommodation for 112 students, each working space being supplied with water, gas and fume cupboard. The third and fourth year laboratory for quantitative analysis will accommodate 36 students, and is supplied with commodious fume cupboards and all necessary apparatus. A laboratory with working places for 24 is provided for the students engaged in the study of technical chemistry; is it equipped with appliances for the preparation and testing of chemical products. Each of these laboratories has its own balance room adjoining, furnished with instruments from the best makers and adapted to the particular objects in view.

In addition there are rooms set apart for gas analysis, electrolytic analysis, calorimetry and a specially constructed fireproof laboratory for combustion, crucible and bomb furnaces. Each of these laboratories is supplied with apparatus of the most approved design, providing excellent facilities for the prosecution of work in analytical and technical chemistry.

MUSEUMS.

The Geological Museum includes collections of minerals, rocks and fossils. There is a large general collection of minerals classified in the usual manner, and intended for comparison and reference in advanced classes; but special attention is paid to the extensive collection of Ontario minerals, which, with few

exceptions, contains all the specimens known in the Province, and is particularly rich in examples of economic minerals. The Ontario collection is constantly being added to, and is believed to be as complete as any in the Dominion.

Adjoining the mineral collection is a series of ores of all descriptions. Particular prominence is given to the gold and silver ores of Canada, especially the Ontario gold ores.

The rocks also are arranged in two collections, one a large general collection from foreign localities, containing massive schistose and sedimentary rocks; the other, a set of Canadian rocks, especially complete in typical country rocks from important ore deposits. An extensive set of thin sections enables advanced students to study both rock collections microscopically.

The palaeontological collection consists of fossils and casts, including the chief typical forms needed for determining the age of sedimentary rocks.

A number of wall cases have been prepared for a collection of specimens illustrating industrial chemistry, and a beginning made towards arranging the materials on hand.

In a separate room there is an interesting collection of dressed building and ornamental stones from various parts of Ontario, serving as illustrations in the architectural department.

LIBRARY.

The library is supplied with a number of the more important scientific and technical periodicals. A valuable collection of works of reference in the subjects of study pursued in the School has been formed and is being added to year by year.

List of Donors to the Library.

American Society of Civil Engineers—Proceedings.
Association of Engineering Societies—Journal.
Blackwood, A. E.—Stone.
Bureau of Mines—Report.
Canadian Mining Institute—Journal.

Columbian University—Quarterly.

Department of Mines, Nova Scotia—Report.

Geological Survey of Canada—Report.

Gzowski, Estate of the late Sir Casimir—

Transactions of American Society of Civil Engineers,
1874-1898.

Transactions of Canadian Society of Civil Engineers, vol.
I., 1877—vol. XII., 1898.

Proceedings of The Institution of Civil Engineers, vol.
LXIII., 1880—vol. CXXXII., 1898.

Institution of Engineers and Shipbuilders in Scotland—Transac-
tions.

Institution of Junior Engineers—Transactions.

Institution of Mechanical Engineers—Proceedings.

Royal Institute of British Architects—Journal and Proceedings.

Society of Chemical Industry—Journal.

Societe des Ingenieurs Civils de France—Memoires.

United States Coast and Geodetic Survey—Report.

United States Government Tests of Metals, etc.—Report.

University of Toronto—Studies.

THE ENGINEERING SOCIETY OF THE SCHOOL OF PRACTICAL SCIENCE.

Officers for 1905-06.

President J. P. C. Charlebois.

Vice-President E. L. Cousins.

Recording Secretary E. C. Ash.

Treasurer D. W. Marrs.

Corresponding Secretary ... C. S. Shirriff.

Editor To be appointed.

Librarian C. W. Power.

Assistant Librarian E. G. Hewson.

Graduates' Representative A. E. Davison.

Fourth Year Representative ... A. Latonnell.

Third Year Representative J. Gray.

Second Year Representative ... R. J. Gibson.

First Year Representative To be elected.

The Society meets every second Wednesday during the Academic Year. Papers are read, and discussions are held on engineering subjects. The Society publishes a pamphlet annually, containing the best papers read at the meetings.

SCHOOL OF PRACTICAL SCIENCE ATHLETIC ASSOCIATION.

Executive Committee, 1904-05.

Honorary President	Principal Galbraith.
President	W. G. Swan.
Vice-President	F. C. Broadfoot.
Secretary-Treasurer	R. L. Harrison.
IV. Year Representative	J. W. Larkworthy.
III. " "	W. H. Young.
II. " "	W. Blackwood.
I. " "	F. Connery.

The athletic association is the ruling body in School athletics, and has full control over all athletic clubs using the School name. The Executive Committee has power to suspend any one from the privileges of membership in the association for any breach of its regulations, and controls the finances of all athletic clubs in the School. The annual membership fee of this association is fifty cents.

No other monies are collected for the support of athletics in the School without the sanction of the Executive Committee.

RUGBY FOOTBALL.

The Mulock Cup, which was presented by Hon. Wm. Mulock, M.A., LL.D., to the University of Toronto Rugby Foot-ball Club for inter-college competition, brings out each year a large number of contestants from the University and affiliated colleges.

RUGBY FOOTBALL CLUB OF THE SCHOOL OF PRACTICAL
SCIENCE,

Officers.

Hon. President	Principal Galbraith.
President	P. M. Yeates.
Sec.-Treas.	F. N. Rutherford.
Manager of senior team	W. N. Daniels.
Captain of senior team	R. Montague.
Manager of junior team	F. Connery.
Captain of Junior team	F. A. McGiverin.

ASSOCIATION FOOTBALL.

In order to encourage Association Football on the College Campus, the Faculty of the University of Toronto presented a cup, known as the Faculty Cup, to the Inter-College Association Football Club for annual competition among University and affiliated colleges.

ASSOCIATION FOOTBALL CLUB OF THE SCHOOL OF PRACTICAL
SCIENCE.

Officers.

Hon. President.	Prof. L. B. Stewart.
President	J. A. McFarlane.
Sec.--Treas.	J. M. MacInnes.
Manager of Seniors.....	W. C. Jepson.
Manager of Juniors.....	G. W. Rayner.

HOCKEY.

The trophy which is competed for annually among the Colleges in Hockey is known as the Jennings Cup, and is the gift of W. T. Jennings, Mem., Inst. C. E., Consulting Engineer, Toronto.

HOCKEY CLUB OF THE SCHOOL OF PRACTICAL SCIENCE.

Officers.

Hon. President.	Professor Ellis.
President	G. W. Rayner.
Vice-President	F. C. Broadfoot.
Sec.-Treas.	J. M. MacInnes.
Manager of senior team	E. A. Henry.
Manager of Junior Team	K. Hall.

TRACK CLUB.

Officers, 1904-1905.

President	L. W. Morden.
Vice-President	J. P. Charlebois.
Sec.-Treas.	R. L. Harrison.
IV. Year Representative ...	W. R. Worthington.
III. " "	H. W. Wilkie.
II. " "	W. N. Daniels.
I. " "	F. H. Chesnut.

THE TORONTO ENGINEER COMPANY.

Major Commanding ...	W. R. Lang, Prof. of Chemistry, University of Toronto.
Lieut. (Acting Adj.)	H. N. Gzowski.
Lieutenant	H. W. Evans.
Lieutenant	J. G. Fleck.
Lieutenant	C. S. L. Hertzberg.
Lieutenant	H. F. H. Hertzberg.
Company Sergt. Major	— Woodburn.
Sgt.	N. A. Burwash.
Sgt.	O. B. McCuaig.
Sgt.	A. E. Davison.
Sgt.	W. E. Wickett.

The Toronto Engineer Company.—*Continued.*

Sgt.	A. M. Campbell.
Sgt. on Staff	S. B. Wass.
Lance Sgt.	J. P. Charlebois.
Signal Sgt.	W. E. Cane.
Quarter Master Sgt.	A. Williams.

UNIVERSITY OF TORONTO ATHLETIC ASSOCIATION.

Directorate.

(From the Calendar of the University of Toronto).

Pres.—President Loudon.

Vice-Pres.—F. W. Baldwin.

Sec.-Treas.—W. G. Wood, D.D.S.

Dir.—Prof. J. McG. Young.	Dir.—Rev. D. B. Macdonald,
“ W. J. O. Malloch, B. A.,	M.A
M.B.	“ E. Boyd.
“ R. E. Williams.	“ E. M. Henderson.
“ J. C. Sherry.	“ S. P. Biggs.

The athletic association is now the paramount body in University Athletics, and has entire jurisdiction over the athletic clubs using the University name, and over their finances, members, and policy, subject to the University authorities. Henceforth no financial agreement can be entered into by any such club without the sanction of the Directorate. No expenditure of any kind in connection with any such club can be made without the written order of the Secretary-Treasurer of the Directorate.

GYMNASIUM AND ATHLETIC GROUNDS.

(From the Calendar of the University of Toronto).

“The University gymnasium was completed and equipped in 1893. It is fully provided with the best and most modern appliances for physical culture, and contains a running track, show-

er baths and swimming bath, besides the necessary dressing rooms and other conveniences. A competent instructor in gymnastics is in constant attendance to superintend and direct the exercises of students. In addition to the lawn in front of the Main University Building and a campus in the rear, a large plot of ground on Devonshire Place has been set apart as an athletic field. By this addition the facilities for football, cricket, tennis and other out-door athletic sports are doubled, as compared with previous accommodation; and by these grounds, in conjunction with the gymnasium, ample opportunity is afforded to all students for healthful exercise and physical development. To assist in meeting the expenses of the gymnasium, a nominal annual fee is imposed on those who avail themselves of its advantages. The supervision of all athletic matters has been entrusted by the Councils to an Athletic Board, consisting of six members appointed from the Faculty and officers of the Athletic Association. All applications of clubs for the use of grounds must be made annually to this Board. All such applications must be accompanied by a list of officers. In the case of new clubs the list of officers must be accompanied by particulars as to the organization and objects of the club making application."

STUDENTS' UNION BUILDING.

(From the Calendar of the University of Toronto).

"In 1894 additions were made to the front of the building in which the gymnasium is situated, consisting of a large hall for public meetings, a reading room and committee rooms. This additional accommodation is available for the work of the various student societies, and for academic purposes. Applications for the use of rooms, accompanied by a list of officers and a copy of the constitution of the society making application, must be made, through the President, to the joint committee of the Councils on Gymnasium and Students' Union Building, at the beginning of the season, or from time to time as occasion requires. Arrangements have also been made by which recognized societies may obtain the use of committee rooms on application to the janitor of the Students' Union Building."

SESSION 1904-1905.

STUDENTS IN ATTENDANCE.

FIRST YEAR.

Regular Students.

3	Adams, G. H.	Victoria, B. C.
5	Akers, H. G.	Toronto.
3	Anderson, J. E.	Lindsay.
3	Ash, E. C.	Todmorden.
3	Atkinson, B.	Deloraine, Man.
1	Augustine, A. P.	Arkona.
3	Beckstedt, R. D. S.	Prescott.
1	Bishop, W. J.	Cryslar.
3	Bothwell, C. C.	Barrie.
3	Bowman, H. D.	London.
3	Boyd, G. M.	Bobcaygeon.
1	Broughton, G.	Paris.
1	Brown, J. A.	Sarnia.
1	Bryce, W. F. M.	Toronto.
1	Bush, C. E.	Toronto.
1	Caldwell, J. E.	Davenport.
1	Carrie, K. N.	Toronto.
1	Carscallen, H. R.	Calgary, Alta.
1	Chesnut, F. H.	Toronto.
3	Clendenning, C. S.	Walkerton.
3	Collett, W. C.	Toronto.
3	Colvin, C. W.	Galt.
1	Connery, F.	Toronto.
1	Copeland, M.	Emerson, Man.
1	Cory, R. Y.	Toronto.
1	Cowper, G. C.	Welland.

First Year.—*Continued.*

2	Cruickshank, A. M.	Weston.
2	Culbert, V.	London.
3	Cummer, H. H.	Hamilton.
3	Dawson, G. A.	Mount Forest.
3	Dissette, A. C.	Toronto.
3	Evans, S. D.	Leamington.
3	Ewart, F. R.	Toronto.
3	File, E. S.	Napanee.
1	Fleming, G. R. S.	Toronto.
3	Fletcher, E. S.	Toronto.
1	Flint, C.	Toronto.
3	Francis, G.	Verschoyle.
6	Fux, P. C.	Brantford.
2	Galt, G.	Rossland, B.C.
1	Garrow, A. B.	Toronto.
1	Gerard, A.	Ottawa.
2	Gibson, R. J.	Bradford.
1	Gillies, A.	St. Thomas.
1	Glover, A. E.	Beaverton.
1	Grady, J. E.	Macleod, Alta.
1	Graham, G. W.	Eugenia.
3	Gray, M. H.	Barrie.
1	Hagarty, R. E. W.	Toronto.
2	Hague, R. D.	London.
1	Hall, J. H.	Toronto.
1	Hamilton, C. T.	Windsor.
5	Harris, F. K.	Toronto.
1	Hertzberg, H. F. H.	Toronto.
3	Hill, H. O.	Toronto.
1	Hogg, T. H.	Chippawa.
3	Hoskins, D. W.	Toronto.
1	Hyland, H. M.	Whitby.
3	Hyman, E. W.	London.
3	Ireland, L. G.	Durham.
1	Jackson, W.	Ridgeway.
3	Janney, W. E.	Galt.

First Year.—Continued.

3	Kay, E. W.	Paris.
1	Klingner, L. W.	Toronto.
1	Lamb, F. C.	Walkerton.
3	LePan, A. D.	Owen Sound.
1	Lindsay, J. H.	Hornby.
3	Maclean, B. A.	Orillia.
1	McLeod, G.	Parkhill.
3	McCully, K. C.	Deer Park.
3	McCurdy, J. A. D.	Toronto.
2	McDonald, P.	Toronto.
2	McGiverin, F. A.	Hamilton.
3	McGugan, D. J.	Ekfrid.
3	McIntosh, A. M.	Mosboro.
1	McKechnie, F. H.	Woodstock.
1	McKellar, L. D.	Toronto.
1	McLean, A. L.	Hensall.
3	McNeill, F. W.	Toronto.
3	Macfie, D. A.	Nottawa.
1	Maher, W. R.	Eganville.
3	Marshall, A.	Snelgrove.
6	Mason, D. H. C.	Toronto.
5	Milligan, G. L.	Brampton.
1	Mills, G. G.	Toronto.
3	Minns, J. B.	Woodstock.
1	Moore, J. M.	London.
5	Morley, P. F.	Berlin.
3	Murray, W. P.	Fairview.
1	Murray, E. W.	Seaforth.
1	Neelands, R. E. K.	Brampton.
1	Neelands, E. W.	Forest.
2	Neilly, B.	Bradford.
3	Nelson, S. W. H.	Toronto.
3	Nighswander, D. L.	Keenora.
1	O'Gorman, C. A.	Depot Harbor.
1	Oxley, J. M.	Toronto.
2	Paton, T. K.	Merritton.

First Year.—*Continued*

5	Pattinson, F. H.	Preston.
1	Paulin, F. W.	Arthur.
3	Percy, H. A.	Alvinston.
3	Perry, F. A.	Toronto.
1	Phillips, C. S.	Minden.
1	Potter, R. B.	Minden.
3	Prochnow, F.	New London, Conn.
3	Procunier, J. F.	Bayham.
5	Qua, A. H.	Bayham.
3	Quance, G. E.	Delhi.
3	Raine, H.	Orton.
1	Rannie, J. L.	Newmarket.
3	Richardson, A. B.	Walkerton.
3	Richardson, C. W. B.	Norwood.
1	Ridler, A. A.	Toronto.
5	Robertson, F. A.	Toronto.
3	Robertson, C. P.	Hamilton.
2	Ronald, C. S.	Meaford.
5	Rothwell, H. E.	Toronto.
5	Rothwell, W. E.	Toronto.
5	Scholfield, C. A. ...	Dunnville.
1	Scott, C. A.	Toronto.
2	Scott, J. M.	Toronto.
3	Shearer, H. P.	Vittoria.
1	Sheppard, A. C. T.	Ottawa.
3	Smith, N. E.	Toronto.
3	Smithrim, E. R.	Cairngorm.
1	Snaith, W.	Quebec.
3	Spence, J. J. ...	Toronto.
3	Spencer, A. C.	London.
3	Stalker, J. D. B.	Walkerton.
3	Stewart, G. S.	Strathroy.
1	Stiles, J. A. C.	London.
3	Stiver, J. L.	Mount Albert.
1	Summers, G. F.	Winchester.

First Year.—*Continued.*

1	Sutcliffe, H. W.	Forest.
3	Thomson, O. R.	Blenheim.
3	Toms, C. G.	Toronto.
1	Tye, H. W.	Stratford.
1	Walker, J. A.	Guelph.
3	Webb, C. E.	Toronto.
1	White, W. R.	Drayton.
1	Wilkes, E. D.	Brantford.
1	Williams, D.	Lindsay.
3	Wilson, A. F.	Toronto.
3	Wilson, F. F.	Harriston.
3	Woods, M. H.	Aylmer.
1	Workman, G. R.	Waterdown.
4	Zinkan, W. E.	Southampton.

Non-Regular Students taking Full Course.

3	Allen, F. G.	Erie, Pa.
1	Anderson, F. J.	Niagara Falls.
1	Beardmore, C. O.	Toronto.
3	Bethune, R. M.	Toronto.
1	Bruce, W. J.	Gamebridge.
1	Buchanan, J. A.	Comber.
3	Campbell, G. A.	Millbrook.
3	Caster, J. H.	Claremont.
2	Charlton, O. W. N.	Toronto.
3	Connell, C. B. B.	Lime Kiln, B. W. I.
3	Coulter, G. P.	Buffalo, N. Y.
3	Doorly, H. C.	San Fernando, Trin.
2	Dyer, F. C.	Toronto.
3	Fetherstonhaugh, J.	Toronto.
3	Foreman, J. M.	Lucan.
3	Fraser, R. D.	Pilot Mound, Man.
1	Galletley, J. S.	Toronto.
3	Gillies, A. R.	Toronto.
3	Hall, K.	Penetanguishene.

Non-Regular Students Taking Full Course.—*Continued.*

3	Hall, R. H.	Peterboro.
3	Hallam, T. D.	Toronto.
1	Hara, F. J.	Merritton.
1	Hellmuth, H. I.	Toronto.
1	Hewson, E. G.	St. Catharines.
3	Hutton, C. H.	Hamilton.
4	Jackson, B.	Petrolea.
1	Jardine, W. S.	Omeme.
2	Johnson, H. A.	Hamilton.
1	Johnston, H. C.	London.
3	Keith, D. F.	Toronto.
2	Kennedy, M. D.	Toronto.
4	Kerr, K. C.	Petrolea.
3	King, W. S.	Guelph.
1	Kinghorn, A. A.	Toronto.
5	Lewis, R. G.	Toronto.
1	Lloyd, N. C. A.	Kettleby.
3	Lynar, H. R.	Toronto.
1	McNeill, I. F.	Ottawa.
1	Malcolmson, W. S.	Toronto.
3	Maynard, H. V.	Port Hope.
3	Melson, J. W.	Oakville.
1	Miller, H. H.	Toronto.
3	Murray, J. D.	Toronto.
3	Nicholls, N. C.	Toronto.
1	Nourse, A. E.	Toronto.
1	O'Grady, E. W.	Toronto.
3	Oke, W. V.	Toronto.
4	Page, F. P.	Toronto.
1	Paquet, J. E.	Quebec, Que.
1	Pearson, A. W.	Weston.
1	Phillips, H. G.	Minden.
3	Pollard, B.	Petrolea.
3	Ratz, A. P.	Elmira.
3	Ryerson, G. C.	Toronto.
3	Saylor, S. A.	Bloomfield.

Non-Regular Students Taking Full Course.—*Continued.*

1	Siegner, W. A.	Tavistock.
1	Stuart, J. L. G.	Toronto.
3	Sylvester, K. B.	Toronto.
1	VanNostrand, J.	Toronto.
3	Wedlake, R.	Brantford.
3	Weir, R. P.	Toronto.
2	Wright, J. V.	Montreal.
1	Ziegler, O. E.	Toronto.

SECOND YEAR.

3	Amos, W. L.	Guelph.
1	Arens, A. H.	Orillia.
3	Armer, J. C.	Chesley.
3	Arnott, G. C.	Toronto.
1	Baker, M. H.	St. Thomas.
2	Banting, E. W.	Toronto.
3	Barber, F.	Toronto.
2	Bates, M.	Chatham.
5	Beeman, J. J.	Sandwich.
2	Bellisle, J. P.	Toronto.
3	Betts, H. H.	London.
5	Beynon, D. E.	Toronto.
2	Bissett, G. W.	Kincardine.
3	Blackwood, W. C.	Harriston.
1	Bourne O. B.	Winnipeg, Man.
3	Brady, W. S.	Toronto.
3	Brandon, H. E.	Cannington.
1	Brian, M. E.	Windsor.
2	Broadfoot, F. C.	Seaforth.
2	Brown, T. W.	Alberton.
1	Bunnell, A. E. K.	Brantford.
3	Byam, F. M.	Toronto.
3	Cameron, A.	Marmora.
3	Campbell, A. W.	Melita, Man.
1	Carroll, M. J.	Toronto.
3	Carroll, A. M.	Richmond Hill.

Second Year.—*Continued.*

3	Chadwick, R. E. C.	Toronto.
1	Christie, F.	Manchester.
1	Clark, G. T., B.A.	Campbellford.
3	Clendening, C. A.	Walkerton.
5	Coleman, R. M.	Toronto.
3	Colhoun, G. A.	Alvinston.
1	Cook, A. B.	Georgetown.
1	Cook, W. A. M.	Toronto.
1	Cousins, E. L.	Toronto.
3	Crawford, A.	Fernhill.
4	Creighton, A. G.	Dartmouth, N. S.
4	Daniels, W. N.	Norristown, Pa.
3	Davis, R. S.	Schomberg.
3	Death, N. P. F.	Dixie.
3	Doidge, E. H.	Lakefield.
3	Dundass, G. S.	Putnam.
2	Evans, H. W.	Toronto.
3	Fear, S. L.	Amherstburg.
3	Fletcher, H. M.	Hamilton.
5	Forward, C. C.	Iroquois.
1	Foster, W. J.	Windsor.
1	Glendinning, G.	Ailsa Craig.
5	Graham, C. W.	Bradford.
1	Grant, L. E. H.	Bridgetown, B. W. I.
3	Grasett, C. S.	Barrie.
3	Gray, J.	Port Credit.
1	Greene, P. W.	Orillia.
1	Greene, W. H.	Toronto.
3	Hamilton, C. B.	Toronto.
3	Hare, R. A. N.	St. Catharines.
1	Harkness, A. L.	Iroquois.
1	Harris, R. C.	Hebron, N. S.
1	Harrison, E.	Belleville.
1	Harrison, R. L.	Grimsby.
3	Hartney, J. C.	Toronto.
1	Hett, S.	Sutton West.
3	Hillis, C. R.	Watford.

STUDENTS IN ATTENDANCE.

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Second Year.—Continued.

1	Holmes, O. B.	Selkirk.
3	Hookway, C. W.	London.
3	Hopkins, R. H.	Lindsay.
2	Horwood, H. O. R.	Toronto.
1	Houston, R. S.	Emerson, Man.
2	Huber, W.	Bracebridge.
3	Hull, A. H.	Cayuga.
3	Jepson, W. C.	Niagara Falls.
1	Johnston, C.	Toronto.
1	Jones, G. R.	Brantford.
3	Jones, T.	Toronto.
1	Keith, H. P.	Comber.
3	Keppy, J. D.	Spence.
2	Lamb, G. J.	Walkerton.
1	Lang, J. L.	Toronto.
3	Linton, A. P.	Galt.
3	Macdonald, F. R.	Lindsay.
1	MacInnes, J. M.	Ripley.
1	Mackay, A. G.	Lucknow.
2	MacKenzie, A. K.	Toronto.
1	MacKinnon, W.	Woodbridge.
3	MacLachlan, W.	Toronto.
4	McConnell, A. W.	Walkerton.
2	McDonald, L. C.	Walton.
1	McFarlane, J. B., B.A.	Claremont.
1	McGregor, J. M.	Ridgetown.
3	McIlwraith, D. G.	Galt.
2	McKenzie, J. A.	Kincardine.
1	McNab, J. V.	Ayr.
3	McPherson, J. A.	Toronto.
1	McQuarrie, M. K.	Norman.
3	Maguire, H. C.	St. Catharines.
3	Marrs, D. W.	Beamsville.
3	Maxwell, W. A.	Windsor.
1	Meader, C. H.	Toronto.
3	Meader, J. E.	Toronto.
1	Menzies, J. M.	Staples.

Second Year.—*Continued.*

3	Miller, L. R.	Orillia.
1	Mitchell, B. F.	Harriston.
3	Molesworth, G. N.	Toronto.
1	Montague, F. F.	Hamilton.
1	Murdock, C. R.	Brampton.
2	Murphy, C. J.	St. Catharines.
1	Near, W. P., B.A.	St. Marys.
2	Neelands, R., B.A.	Wheatland, Man.
3	Park, D. G.	Chatham.
3	Pennington, C. H. L.	London.
5	Peterson, C. A.	Toronto.
5	Pettingill, R. E.	Rose Hall.
1	Power, C. W.	Toronto.
1	Pringle, H. L.	Whitby.
2	Purser, R. C.	Windsor.
3	Reynolds, G. B.	Toronto.
3	Ritchie, H. C.	Elmvale.
3	Robertson, N. R.	Walkerton.
1	Roddick, J. O.	Brantford.
1	Rogers, C. H.	Peterboro.
2	Rolfson, O.	Walkerville.
1	Ross, K. G.	Toronto.
1	Ross, R. C.	Port Robinson.
1	Routly, H. T.	Kirkfield.
2	Ryckman, J. H.	Fruitland.
3	Sanders, W. K.	St. Thomas.
1	Scott, W. A.	Galt.
1	Seibert, F. V.	Southampton.
3	Sewell, R. L.	Toronto.
3	Silcox, A. B.	Lansing, Mich.
1	Stewart, W. M.	Hamilton.
2	Stirrett, G. P.	Petrolea.
1	Strathy, E. S. G.	Toronto.
1	Taylor, W. C.	Hamilton.
2	Thompson, H. P.	Toronto.
1	Thompson, P. M.	Picton.
2	Thomson, J. E.	Toronto.

1	Thomson, A.	Bendale.
3	Vickery, C. L.	Port Perry.
1	Wilson, J. M.	Toronto.
3	Wilson, J. N.	Shanly.
3	Wood, E. M.	Sweaburg.
3	Young, J.	Chesley.
3	Zimmer, A. R.	Brussels.

THIRD YEAR.

3	Arens, H. W.	Orillia.
3	Armour, R. H.	Toronto.
3	Aylsworth, C. B.	London.
3	Baldwin, F. W.	Toronto.
1	Barber, W.	Toronto.
2	Begg, W. A.	West Flamboro.
3	Bell, G. G.	Chesley.
1	Boeckh, J. C.	Toronto.
3	Bristol, W. M.	Madoc.
2	Campbell, W. C.	Keene.
3	Carson, W. R.	Carsonby.
3	Chantrell, E.	New Westmister, B. C.
3	Charlebois, J. P. C.	Toronto.
1	Chase, A. V.	Orillia.
3	Clement, S. R. A.	Churchill.
3	Corrigan, T. E.	Toronto.
1	Crosby, N. L. R.	Hebron, N. S.
3	Dowling, F.	Harriston.
1	Ferguson, G. H.	Toronto.
3	Fierheller, H. S.	Toronto.
3	Harrison, F. W.	Hagersville.
1	Hendry, M. C.	Toronto.
1	Henry, E. A.	Kincardine.
2	Hertzberg, C. S. L.	Toronto.
3	Hewson, W. G.	Niagara Falls.
1	Jones, G. S.	Smith's Falls.
3	Kribs, G.	Hespeler.

Third Year.—*Continued.*

2	Laing, P. A.	Dundas.
1	Latornell, A.	Meaford.
3	Leighton, J. W.	Toronto.
1	Loudon, T. R.	Toronto.
1	Lytle, F. H.	Toronto.
3	McGorman, S. E.	St. Marys.
1	McGregor, W. W.	Glen Williams.
2	McKenzie, D. W.	Lochalsh.
2	McLean, W. N.	Toronto.
3	McLean, C. A.	St. Thomas.
3	Mace, F. G.	Toronto.
3	Mace, T. H.	Toronto.
3	Moffatt, R. W.	Bognor.
3	Morden, L. W.	Hamilton.
3	Munro, G. R.	Peterboro.
3	Nicklin, W. G.	Grand Rapids, Mich.
1	O'Brien, E. D.	Merrickville.
1	Patten, B. B., B.A.Sc.	St. George.
1	Phillips, E. P. A.	Toronto.
1	Porte, W. B.	Oakville.
2	Pullen, E. F.	Oakville.
2	Ramsey, G. L.	Dunnville.
1	Rayner, G. W.	Thorold.
3	Richardson, W. L.	Walkerton.
3	Ross, R. B.	Toronto.
5	Rothwell, T. E.	Gilford.
2	Scott, G. S.	Toronto.
3	Serson, H. V.	Antrim.
3	Shirriff, C.	Niagara Falls.
3	Sisson, C. E.	Peterboro.
1	Southworth, H. S.	Toronto.
1	Stewart, D. L. N.	Toronto.
1	Stewart, M. A.	Toronto.
3	Stubbs, W. M.	Buffalo, N. Y.
1	Sturdy, N. H.	Lakefield.
1	Swan, W. G.	Kincardine.
1	Sykes, F. H.	Toronto.

Third Year.—*Continued.*

3	Thomson, L. R.	Toronto.
3	Tillson, E. D.	Tillsonburg.
1	Traill, J. J.	Toronto.
1	Treadgold, W. M., B.A.	Brampton.
3	Turner, W. E.	Orangeville.
3	Uren, A. E.	Ingersoll.
1	Vansittart, G. E.	Toronto.
3	Vaughan, J.	Toronto.
1	Wagner, H. L.	Toronto.
5	Wickett, W. E.	Toronto.
3	Yeates, P. M.	London.
2	Young, W. H.	Clifford.

FOURTH YEAR.

	Bonnell, M. B.	Bobcaygeon.
	Burwash, N. A.	Toronto.
	Calder, J. W.	Cranbrook, B.C.
	Campbell, A. J.	Collingwood.
	Campbell, A. M.	Toronto.
	Christie, U. W.	Chesley.
	Coates, P. C.	Victoria, B.C.
	Code, T. F.	Smith's Falls.
	Crerar, S. R.	Brussels.
	Davison, A. E.	Prescott.
	Depew, H. H.	Hamilton.
	Ford, A. L.	Grimsby Park.
	Gibson, W. S.	Toronto.
	Gray, W. W.	Uxbridge.
	Greenwood, W. K.	Toronto.
	Hanes, G. S.	Windsor.
	James, E. A.	Thornhill.
	Jermyn, P. V.	Toronto.
	Larkworthy, W. J.	Mitchell.
	McAuslan, H. J.	Heathcote.
	McCuaig, O. B.	Toronto.

Fourth Year.—*Continued.*

McEwen, G. G.	Moose Creek.
McFarlane, W. G., B.A.	Claremont.
McGibbon, C. P., B.A.	Brampton.
McKay, C. D.	Maplewood.
Marriott, F. G.	Toronto.
Montgomery, R. H., D.L.S.	Brantford.
Pace, G.	Orillia.
Parke, J.	Oil City.
Peaker, W. J.	Brampton.
Raymond, D. L. C.	Windsor.
Roxburgh, G. S.	Norwood.
Rutherford, F. N.	South Monaghan.
Sheply, J. D.	Leamington.
Shipe, H. M.	Toronto.
Smither, W. J.	Toronto.
Thomson, S. E.	Blenheim.
Townsend, D. T.	Woodstock.
Townsend, C. J.	Toronto.
Trimble, A. V.	Toronto.
Tucker, B. B.	Allanburg.
White, H. F.	London.
Walker, E. W.	Cayuga.
Williams, C. G.	London.
Worthington, W. R.	Toronto.
Wright, W. F.	Toronto.
Young, C. R.	Picton.

Occasional.

Allen, T. B.	Toronto.
Holcroft, H. S., D.L.S.	Toronto.
Morton, P. E.	Belhaven.
Parker, T. H.	Barrie.
Weddell, R. G.	Trenton.

PRIZEMEN.

Engineering.

1879.—	I.	Year	J. McAREE	1st Prize.
1880.—	II.	"	J. L. MORRIS	1st "
1881.—	I.	"	G. H. DUGGAN	1st "
	II.	"	D. JEFFREY	1st "
1882.—	I.	"	A. R. RAYMER	1st "
	I.	"	E. W. STERN	2nd "
	II.	"	G. H. DUGGAN	1st "
	III.	"	D. JEFFREY	1st "
1883.—	I.	"	B. A. LUDGATE	1st "
	I.	"	A. M. BOWMAN	2nd "
	II.	"	A. R. RAYMER	1st "
	II.	"	E. W. STERN	2nd "
	III.	"	G. H. DUGGAN	1st "
1884.—	II.	"	B. A. LUDGATE	1st "
	III.	"	E. W. STERN	2nd "
	III.	"	A. R. RAYMER	2nd "
1885.—	I.	"	A. E. LOTT	1st "
	I.	"	J. ROGERS	2nd "
	II.	"	T. K. THOMSON	1st "
	III.	"	B. A. LUDGATE	1st "
1886.—	I.	"	C. H. C. WRIGHT	1st "
	I.	"	J. E. ROSS	2nd "
	II.	"	A. E. LOTT	1st "
1887.—	I.	"	H. E. T. HAULTAIN	1st "
	II.	"	C. H. C. WRIGHT	1st "
	III.	"	A. E. LOTT	1st "
	III.	"	J. ROGERS	2nd "
1888.—	I.	"	E. B. MERRILL	1st "
	I.	"	F. M. BOWMAN	2nd "
	II.	"	D. D. JAMES	1st "
	III.	"	C. H. C. WRIGHT	1st "

PRIZEMEN

Prizemen.—Continued.

1889—	I.	Year.	J. K. ROBINSON	1st	“
	I.	“	G. E. SILVESTER	2nd	“
	II.	“	E. B. MERRILL	1st	“
	II.	“	F. M. BOWMAN	2nd	“
	III.	“	D. D. JAMES	1st	“
1890—	I.	“	C. FAIRCHILD	1st	“
	II.	“	J. K. ROBINSON	1st	“
	III.	“	F. M. BOWMAN	1st	“
	III.	“	E. B. MERRILL	2nd	“
1891—	I.	“	A. J. MCPHERSON	1st	“
	I.	“	R. B. WATSON	2nd	“
	II.	“	J. B. GOODWIN	1st	“
	III.	“	G. E. SILVESTER	1st	“
	III.	“	C. W. DILL	2nd	“
1892—	I.	“	A. E. BERGEY	1st	“
	I.	“	R. W. ANGUS	2nd	“
	II.	“	A. J. MCPHERSON	1st	“
	II.	“	R. B. WATSON	2nd	“
	III.	“	E. J. LASCHINGER	1st	“
	III.	“	C. FAIRCHILD	2nd	“

The Grant of prizes was withdrawn at the close of 1892.

Architecture.

The prize in Architecture was the gift of Mr. D. B. Dick, Architect, Toronto.

1891—	I.	Year	H. F. BALLANTYNE.
1892—	I.	“	J. A. EWART.
1893—	I.	“	A. H. HARKNESS.
1894—	I.	“	E. A. FORWARD.
1895—	I.	“	W. F. SCOTT.
1896—	I.	“	D. MACINTOSH.
1899—	I.	“	W. F. SHEPHERD.

Civil Engineering.

The prize in Civil Engineering is the gift of Mr. T. Kennard Thomson, C.E., New York.

1897—III.	Year	...	M. B. WEEKES.
1898—III.	"	...	J. A. STEWART.
1899—III.	"	...	T. SHANKS.
1900—III.	"	...	E. H. PHILLIPS.
1901—III.	"	...	H. P. RUST.
1902—III.	"	...	W. F. RATZ.
1903—III.	"	...	C. R. YOUNG.
1904—III.	"	...	W. N. MOORHOUSE.

Mechanical and Electrical Engineering.

Donor, Mr. F. A. Riehle, Philadelphia.

1897—III.	Year	...	A. T. GRAY.
1898—III.	"	...	F. C. SMALLPIECE.

UNIVERSITY OF TORONTO.

Degree of Bachelor of Applied Science.

Date of admission. Name.	Date of admission. Name.
1893...Alison, T. H.	1897 *Elliott, H. P.
1897 *Angus, R. W.	1903...Empey, J. M.
1904 *Angus, H. H.	1895 *Ewart, J. A.
1901...Ardagh, E. G. R.	1904...Fensom, C. J.
1896...Armstrong, J.	1901...Foreman, W. E.
1897 *Bain, J. W.	1904 *Gaby, F. A.
1894 *Ballantyne, H. F.	1903 *Gagne, S.
1901...Barley, J. H.	1904...Gardner, J. C.
1902...Barrett, R. H.	1903 *Gibson, A. E.
1895...Beauregard, A. T.	1904 *Gibson, N. R.
1903...Blair, W. J.	1904 *Gillespie, P.
1902 *Boswell, M. C.	1894...Goodwin, J. B.
1899...Boyd, W. H.	1899...Grant, W. F.
1902...Brandon, E. T.	1898...Gray, A. T.
1903...Brereton, W. P.	1901...Guy, E.
1896...Brodie, W. M.	1897 *Haight, H. V.
1895...Bucke, W. A.	1904...Hamilton, J. F.
1900...Burnside, J. T. M.	1900...Hare, W. A.
1898...Carpenter, H. S.	1897 *Harkness, A. H.
1899...Carter, W. E. H.	1902...Harvey, C.
1903 *Chace, W. G.	1901...Hemphill, W.
1903 *Chadsey, S. B.	1895...Herald, W. H.
1898...Charlton, H. W.	1901...Holcroft, H. S.
1894 *Chewett, H. J.	1896...Hull, H. S.
1903 *Christie, W.	1894...James, D. D.
1900 *Chubbuck, L. B.	1893...James, O. S.
1902...Cockburn, J. R.	1895 *Job, H. E.
1900...Coulthard, R. W.	1895...Johnson, S. M.
1903 *Culbert, M. T.	1902...Johnson, J. A.
1901...Craig, J. A.	1896...Johnson, A. C.
1901...Davison, J. E.	1894 *Keele, J.
1902...DeCew, J. A.	1903...Knight, R. H.

* Degree with honours.

Degree of Bachelor of Applied Science.—*Continued.*

Date of
 Admission. Name.
 1901...Dickson, G. W.
 1901 *Dixon, H. A.
 1896...Dobie, J. S.
 1902 *Eason, D. E. .
 1904...Edwards, W. M.
 1897...Macallum, A. F.
 1904...Macintosh, D.
 1893...McAree, J.
 1904...McBride, A. H.
 1904...McFarlane, J. A.
 1896 *McGowan, J.
 1896 *McKinnon, H. L.
 1903...McMaster, A. T. C.
 1901...McMillan, J. G.
 1894 *McPherson, A. J.
 1895...McTaggart, A. L.
 1902 *McVean, H. G.
 1897...Macbeth, C. W.
 1897...Martin, T.
 1894 *Merrill, E. B.
 1893...Milne, C. G.
 1896...Mines, W. H.
 1895 *Minty, W.
 1894...Mitchell, C. H.
 1900...Monds, W.
 1901...Neelands, E. V.
 1904...Nevitt, I. H.
 1904...Oliver, E. W.
 1904...Pace, J. D.
 1904...Patten, B. B.
 1904...Plunkett, T. H.
 1901...Pope, A. S. H.
 1903 *Powell, G. G.
 1902 *Price, H. W.

Date of
 Admission. Name.
 1899...Korman, J. S.
 1894...Laidlaw, J. T.
 1893...Laing, A. T.
 1893 *Laschinger, E. J.
 1901...Latham, R.
 1893 *Lawson, W.
 1893...Lea, W. A.
 1894...McAllister, A. .L
 1895...McAllister, J. E.
 1903 *Matheson, P.
 1893...McEntee, B.
 1902...Sauer, M. V.
 1900 *Shanks, T.
 1895...Shields, J. D.
 1899...Shipley, A. E.
 1903...Sinclair, D.
 1902 *Smallpeice, F. C.
 1898...Smiley, R. W.
 1904...Smith, H. G.
 1894 *Speller, F. N.
 1894...Squire, R. H.
 1902...Stevenson, W. H.
 1898 *Stull, W. W.
 1903...Sutherland, W. H.
 1903...Teasdale, C. M.
 1900 *Tennant, D. C.
 1901...Tennant, W. C.
 1893...Thomson, R. W.
 1901...Thorne, S. M.
 1901...Thorold, F. W.
 1904...Trees, S. L.
 1896...Tremaine, R. C. C.
 1900...Wagner, W. E.
 1898...Weekes, M. B.

* Degree with honours.

Degree of Bachelor of Applied Science.—*Continued.*

1900 *Revell, G. E.	1901...Weir, H. M.
1900...Richards, E.	1899 *Williamson, D. A.
1901...Roaf, J. R.	1904 *Wilson, N. D.
1903...Robertson, H. D.	1893 *Wright, C. H. C.
1898 *Robinson, A. H. A.	1902...Wright, R. T.
1902...Rust, H. P.	1903...Zahn, H.
1901...Saunders, H. W.	

Degree of Civil Engineer (C. E.)

1898...Alison, T. H.	1893...Bowman, F. M.
1898...Ashbridge, W. T.	1892...Chewett, H. J.
1895...Bowman, A. M.	1900...Connor, A. W.
1901...Francis, W. J.	1898...Mitchell, C. H.
1900...Haultain, H. E. T.	1896...Moore, J. E. A.
1893...Innes, W. L.	1885...Morris, J. L.
1886...Kennedy, J. H.	1892...Thomson, T. K.
1895...McAllister, J. E.	1894...Tyrrell, H. G.
1901...McDowall, R.	1889...Tyrrell, J. W.

Degree of Mining Engineer (M. E.)

1897	Bucke, M. A.
1900.....	Laidlaw, J. T.

Degree of Mechanical Engineer (M. E.)

1900.....	White, A. V.
1901	Johnston, A. C.

Degree of Electrical Engineer (E. E.)

1896	Ross, R. A.
1902	Elliott, H. P.
1903	Chubbuck, L. B.

* Degree with honours.

GRADUATES.

Note.—Graduates are requested to inform the Registrar of changes in their addresses.

1881.

Course.	Name and address.	Occupation.
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- | | | |
|----|-----------------------------------|--|
| 1. | J. L. MORRIS, C.E., O.L.S.,... .. | Engineer and Surveyor.
Pembroke, Ont. |
|----|-----------------------------------|--|

1882.

- | | | |
|----|---------------------------------|--|
| 1. | D. JEFFREY... .. | Contractor.
Windsor, Missouri. |
| 1. | J. H. KENNEDY, C.E., O.L.S..... | Chief Engineer, Vancouver, Vic-
Grand Forks, B.C. toria & Eastern Ry. |
| 1. | J. McAREE, B.A.Sc., D.T.S... .. | (deceased). |

1883.

- | | | |
|----|---------------------------------|--|
| 1. | D. BURNS, O.L.S.... .. | West Side Belt R.R.
A.M. Can. Soc. C.E., Pittsburgh Bank for Savings
Pittsburgh, Pa. Building. |
| 1. | G. H. DUGGAN..... | General Manager, Dominion Iron &
M. Can. Soc. C.E., Steel Co.
Sydney, N.S. |
| 1. | J. W. TYRRELL, C.E., D.L.S..... | Consulting Engineer and Surveyor.
Hamilton, Ont. |

1884.

- | | | |
|----|------------------------------|---|
| 1. | W. C. KIRKLAND... .. | Chief Engineer, Drainage Commis-
New Orleans, La. sion of New Orleans. |
| 1. | J. McDougall, B.A..... | York County Engineer.
A.M. Inst. C.E.,
Court House, Toronto, Ont. |
| 1. | A. R. RAYMER..... | Asst. Chief Engineer, P. & L. E.
Pittsburgh, Pa. Ry. |
| 1. | JAMES ROBERTSON, O.L.S... .. | Engineer and Surveyor.
Glencoe, Ont. |
| 1. | E. W. STERN... .. | Consulting Engineer, Steel Struc-
M. Am. Soc. C.E., tures, Buildings, etc.
7 West 38th St., New York. |

1885.

- | Course. | Name and address. | Occupation. |
|------------------------------------|--------------------------|---|
| 1. J. F. BLEAKLEY... | Sullivan Block, Seattle, | Civil Engineer. |
| | W.T. | |
| 1. H. J. BOWMAN, D. & O. L. S..... | M. Can. Soc., C.E., | Consulting Engineer. |
| | Berlin, Ont. | (County Clerk and Treasurer.) |
| 1. E. E. HENDERSON, O.L.S... | Henderson, P.O., Me. | Civil Engineer. |
| 1. B. A. LUDGATE, O.L.S... | Pittsburgh, Pa. | Asst. Engineer, P. & L. E. Ry. |
| 1. O. MCKAY, O.L.S. | Walkerville, Ont. | Chief Engineer, Lake Erie and Detroit River Ry. |

1886.

- | | | |
|----------------------------------|--|--|
| 1. A. M. BOWMAN, D.L.S..... | Pittsburgh, Pa. | Engineer, Evansville Contract Co. |
| 1. E. B. HERMON, D. & O.L.S..... | Vancouver, B.C. | Asst. Engineer Vancouver Power Co. |
| 1. ROBERT LAIRD, O.L.S..... | North Bay, Ont. | Engineer on Construction, Temiskaming Ry. |
| 1. T. KENNARD THOMSON, C.E... | M. Am. Soc. C.E.,
13-21 Park Row, New York. | Consulting Engineer. |
| 1. H. G. TYRRELL, C.E..... | A.M. Can. Soc. C.E.
2151 Fulton Ave.,
Cincinnati, O. | Chief Engineer,
The Brackett Bridge Co. |

1887.

- | | | |
|--------------------------------|---------------------------------------|--|
| 1. J. C. BURNS (deceased). | | |
| 1. A. E. LOTT... | Los Angeles, Cal. | Consulting Railway Engineer.
441 Bradbury Bldg. |
| 1. A. L. McCULLOCH, O.L.S..... | A. M. Can. Soc. C.E.,
Nelson, B.C. | City Engineer. |
| 1. F. MARTIN, M.B., O.L.S... | | Physician. |
| 1. C. H. PINHEY, D. & O.L.S... | Coteau Landing. | Engineer for contractor, Soulanges Canal. |
| 1. J. ROGERS, O.L.S... | Mitchell, Ont. | Town Engineer. |

1888.

Course.	Name and address.	Occupation.
1.	J. F. APSEY, O.L.S..... 610 Cathedral St., Baltimore, Md.	Consulting Engineer.
1.	W. T. ASHBRIDGE, C.E..... Edmonton, Alta.	Engineer and Surveyor.
1.	EDWARD F. BALL... A.M. Can. Soc. C.E., Room 400, Grand Central St'n., New York, N.Y.	Civil Engineer.
1.	D. B. BROWN, O.L.S..... Quebec, P.Q.	Locating Engineer, Transcontinental Ry. (G.T.P.)
1.	C. M. CANNIFF... Toronto.	Engineer, Expanded Metal and Fire-proofing Co.
1.	H. J. CHEWETT, C.E., B.A.Sc... A.M. Can. Soc. C.E., 83½ York St., Toronto, Ont.	Manager, Siche Gas Co.
1.	J. GIBBONS, D. & O.L.S... Ottawa, Ont.	Surveying staff, Dep't of Interior.
1.	R. McDOWALL, O.L.S., C.E. A.M. Can. Soc. C.E., Owen Sound, Ont.	Town Engineer.
1.	G. W. McFARLEN, O.L.S..... Toronto, Ont.	City Engineer's Staff.
1.	C. J. MARANI... 49 Cornell St., Cleveland, O.	
1.	G. R. MICKLE, B.A..... Toronto, Ont.	Lecturer in Mining Engineering, School of Practical Science.
1.	J. H. MOORE, O.L.S... Smith's Falls, Ont.	Town Engineer.
1.	G. H. RICHARDSON... Ottawa, Ont.	Assist. City Engineer.
1.	K. ROSE..... 52 Broadway, New York.	Consulting Engineer.
1.	J. E. ROSS, D. & O.L.S... Kamloops, B.C.	Surveying Staff, Dept. of Interior.
1.	C. H. C. WRIGHT, B.A.Sc..... Toronto, Ont.	Professor of Architecture, School of Practical Science.

1889.

Course.	Name and address.	Occupation.
1. B. CAREY.....	Toronto, Ont.	
1. W. J. CHALMERS	Pittsburgh, Pa.	
1. W. A. CLEMENT	A. M. Can. Sec. C.E.,	Sewer Engineer, Staff of City Engineer.
	Toronto, Ont.	
1. G. F. HANNING....	Winnipeg, Man.	Locating Engineer, Transcontinental Railway, Lake Abitibi.
1. H. E. T. HAULTAIN, C. E.....	M. Can. Soc. C.E.	Mining Engineer.
	Nelson, B.C.	
1. J. IRVINE.....	Vancouver, B.C.	Engineering Staff, C.P.R.
1. D. D. JAMES, B.A., B.A.Sc.,...	Toronto, Ont.	Engineer and Surveyor, 227 George street.
1. F. X. MILL (deceased).		
1. H. K. MOBERLEY... ..	Moosomin, Assa.	District Engineer and Surveyor.
1. T. R. ROSEBRUGH, M.A.....	Toronto, Ont.	Professor in Electrical Engineering, School of Practical Science.
1. T. WICKETT, M.D.....	Hamilton, Ont.	Physician.
		356 Cannon st. E.

1890.

5. W. E. BOUSTEAD (deceased).		
1. F. M. BOWMAN, O.L.S., C.E...	Pittsburgh, Pa.	Structural Engineer, Riter-Conley Mfg. Co.
1. M. A. BUCKE, M.E. (deceased).		
1. G. D. CORRIGAN (deceased).		
1. J. A. DUFF, B.A. (deceased).		
1. A. B. ENGLISH (deceased).		
1. N. L. GARLAND... ..	Toronto, Ont.	Garland Manufacturing Co.
		76 Bay street.
1. J. HUTCHEON, O.L.S.....	Guelph, Ont.	City Engineer.
1. W. L. INNES, O.L.S., C.E.....		Manager, Canadian Canner's Ltd.
	Simcoe, Ont.	

1890.—Continued.

Course.	Name and address.	Occupation.
1.	E. B. MERRILL, B.A., B.A.Sc..... 16 King St. West, Toronto.	Consulting Electrical and Mechanical Engineer.
1.	J. R. PEDDER, deceased).	
3.	R. A. ROSS, E.E..... 80 St. Francis Xavier St., Montreal, P.Q.	Ross & Holgate, Consulting Electrical and Mechanical Engineers.
1.	T. H. WIGGINS, O.L.S..... Regina, Assa.	District Surveyor and Engineer. Dept. of Public Works, N.W.T.
1.	W. J. WITHROW..... Ottawa, Ont.	Patent Examiner, Patent Branch, Dept. of Agriculture.

1891.

1.	H. J. BEATTY, O.L.S..... Eganville, Ont.	Engineer and Surveyor
1.	T. R. DEACON, O.L.S..... Winnipeg, Man.	President. Manitoba Iron Works, Ltd.
1.	C. W. DILL..... A.M. Can. Soc. C.E., Toronto, Ont.	General Manager, Constructing & Paving Co., McKinnon Bldg.
5.	O. S. JAMES, B.A.Sc..... Toronto, Ont.	Analytical Chemist and Assayer, 227 George St.
1.	A. LANE (deceased).	
1.	J. E. McALLISTER, B.A.Sc., C.E. Supt. Greenwood, B.C.	British Columbia Copper Smelting Works.
3.	E. B. MERRILL, B.A., B.A.Sc..... 16 King St., West, Toronto.	Consulting Electrical & Mechanical Engineer.
1.	J. E. A. MOORE, C.E..... Cleveland, O.	Estimating Engineer, Wellman- Seaver & Morgan Engineering Co.
1.	W. NEWMAN, O.L.S..... A.M. Can. Soc. C.E. Windsor, Ont.	City Engineer.
1.	J. K. ROBINSON (deceased).	
1.	W. B. RUSSEL..... North Bay, Ont.	Chief Engineer, Temiskaming & Northern Ry
1.	G. E. SILVESTER, O.L.S..... Copper Cliff, Ont.	Mining Engineer, Canadian Cop- per Co.
1.	H. D. SYMMES..... Niagara Falls, Ont.	Contractor, Ontario Power Co

1893.

Course.	Name and address.	Occupation.
1.	J. A. ARDAGH.....	Resident Engineer, C.P.R. Toronto, Ont.
4.	*H. F. BALLANTYNE, B.A.Sc.....	Firm of Ballantyne & Evans, Archi- tects and Engineers, 22 Pine St. New York.
1.	G. L. BROWN, O.L.S.....	County Engineer, Dundas, Stor- Morrisburg, Ont. mont and Glengarry.
1.	*L. C. CHARLESWORTH, D.L.S.....	District Surveyor and Engineer for Medicine Hat, Assa. West Assiniboia.
1.	T. H. DUNN	Firm of Dunn & Fullerton, Civil Winchester, Ont. Engineers.
1.	J. M. R. FAIRBAIRN, P.L.S.....	Resident Engineer, C.P.R. Ottawa, Ont.
4.	*W. FINGLAND	Architect. 39 Caryl Ave., Yonkers, N.Y.
1.	C. FORESTER, Toronto, Ont.	
1.	*W. J. FRANCIS, C.E.	Engineer of Hydraulic Lift Locks, M. Can. Soc. C.E., Trent Canal. M. Am. Soc. C.E., Peterboro, Ont.
3.	*A. R. GOLDIE	Manager, Goldie & McCulloch Galt, Ont. Engine Works.
3.	S. C. HANLY	Mechanical Engineer. Midland, Ont.
4.	*J. KEELE, B.A.Sc.....	Geological Survey of Canada. Ottawa, Ont.
1.	J. T. LAIDLAW, B.A.Sc., M.E.....	Firm of McVittie & Laidlaw, Min- Cranbrook, B.C. ing Engineers and Surveyors.
3.	F. L. LASH	Manager, Batavia Electric Light Batavia, Java. Co.
1.	A. L. McALLISTER, B.A.Sc.....	Draftsman. 149 Milton St., Brooklyn, N.Y. American Steel Corporation.
1.	T. J. McFARLEN	Chief Chemist, Nova Scotia Steel Ferrona, N.S. Co.
1.	*A. J. McPHERSON, B.A.Sc.....	Mining Engineer & Surveyor. D.L.S., Dawson, Yukon Terr.

* Diploma with honours.

1893.—*Continued.*

Course.	Name and address.	Occupation.
1. A. F. McCALLUM, B.A.Sc.....	Quebec, P.Q.	Division Engineer. Transcontinental Ry. (G.T.P.)
1. W. T. MAIN	Baraboo, Wis.	Div. Engineer's Office, Chicago & North Western Ry. Co.
1. V. G. MARANI	Cleveland, Ohio.	Assistant Engineer Cleveland Gas, Light & Coke Co.
1. W. MINES, B.A.Sc.....	Cleveland, Ohio.	With Brown Hoisting Co.
3. *J. M. ROBERTSON	Montreal, P.Q.	Superintendent, Motor and Repair Dept., Montreal Light, Heat and Power Co.
1. R. RUSSEL.....	Pembroke, Ont.	Civil Engineer.
1. *F. N. SPELWER, B.A.Sc.....	McKeesport, Pa.	Chemist, National Tube Works Co.
1. R. H. SQUIRE, B.A.Sc., O.L.S....	51 George St. Brantford, Ont.	Engineer, Ontario Portland Cement Co.
1. W. V. TAYLOR, O.L.S.....	Montreal, P.Q.	Engineering Staff, Locomotive and A.M. Can. Soc. C.E., Machine Co., Ltd.
1. *R. B. WATSON	Dawson, Yukon Terr.	Mining Engineer.

1894.

3. *R. W. ANGUS, B.A.Sc.....	Toronto, Ont.	Lecturer in Mechanical Engineer- ing, School of Practical Science.
1. H. F. BARKER.....	Toronto.	With Office Specialty Mfg. Co.
1. A. T. BEAUREGARD, B.A.Sc.....	Philadelphia, Pa.	With the United Gas Improvement Co.
1. A. E. BERGEY	Pittsburgh, Pa.	With American Bridge Co. Keystone Branch.
3. D. G. BOYD	Toronto, Ont.	Draftsman, Public Works Dept.
3. W. A. BUCKE	Toronto, Ont.	With Canadian General Electric Co.
1. J. CHALMERS, O.L.S.	Winnipeg, Man.	Bridge Engineer, Canadian A.M. Can. Soc. C.E., Northern Ry.

1894.—Continued.

Course.	Name and address.	Occupation.
4.	*J. A. EWART, B.A.Sc.....	Arnoldi & Ewart, Architects. Ottawa, Ont.
3.	W. J. HERALD, B.A.Sc.	With Dominion Iron & Steel Co. Sydney, N.S.
3.	H. E. JOB, B.A.Sc.....	Manager Toronto and Hamilton Hamilton, Ont. Electric Co.
3.	A. C. JOHNSTON, B.A.Sc., M.E.	Consulting Mechanical Engineer. Bristol, Pa.
1.	S. M. JOHNSTON, B.A.Sc., P.L.S.	City Engineer. Greenwood, B.C.
1.	J. E. JONES	Manager, M. H. Treadwell & Co., Pittsburgh, Pa. Engineers, Founders and Ma- chinists.
3.	N. M. LASH	Asst. Electrical Engineer, Montreal, P. Q. Bell Telephone Co.
1.	*A. L. McTAGGART, B.A.Sc.....	Draftsman National Tube Works McKeesport, Pa. Co.
3.	*W. MINTY, B.A.Sc.....	Consulting Engineering Dept., Na- Manchester, Eng. tional Boiler & Gen. Insurance Co.
3.	C. J. NICHOLSON	Preston, Ont.
1.	H. ROLPH	Inspector for Canadian Inspection 146 St. James St. Co. Montreal, Que.
1.	J. D. SHIELDS, B.A.Sc.....	Staff of City Engineer. Toronto, Ont.
3.	A. K. SPOTTON	With Goldie & McCulloch Engine Galt, Ont. Works.
1.	ANGUS SMITH, O.L.S.,	City Engineer. A.M. Can. Soc. C.E., Stratford, Ont.
3.	R. T. WRIGHT, B.A.Sc.....	Draftsman, Westinghouse Machine Pittsburgh, Pa. Co.

* Diploma with honours.

1895.

Course.	Name and address.	Occupation.
1.	J. ARMSTRONG, B.A.Sc.....	Locating Engineer, G.T.P. Surveys. Edmonton, N.W.T.
3.	A. E. BLACKWOOD	Manager, New York Office, 42 Broadway, New York. Sullivan Machinery Co.
1.	E. J. BOSWELL, D.L.S.	Construction Department, C.P.R. Winnipeg, Man.
3.	G. BREBNER	With General Electric Co. Schenectady, N.Y.
3.	W. M. BRODIE, B.A.Sc.	With the Green Engineering Co., of Pittsburgh, Pa. Chicago.
3.	L. L. BROWN	Supt. The Foundation Co. 77 Rutland Rd., Brooklyn, 35 Nassau St. N. Y.
4.	R. J. CAMPBELL	Artist, Chicago Tribune. Chicago, Ill.
3.	A. W. CONNOR, B.A., C.E.	Engineering Department, Canada Toronto, Ont. Foundry Co.
1.	J. S. DOBIE, B.A.Sc., O.L.S.	Mining Engineer. Bruce Mines, Ont.
1.	F. W. GUERNSEY	Engineer, War Eagle Mining Co. Rossland, B.C.
4.	*A. H. HARKNESS, B.A.Sc.	Engineering Dept., Toronto, Ont. Canada Foundry Co.
3.	H. S. HULL, B.A.Sc.....	With Vulcan Iron Works. Wilkes Barre, Pa.
3.	*J. MCGOWAN, B.A., B.A.Sc.	Lecturer in Applied Mechanics, Toronto, Ont. School of Practical Science.
3.	W. N. MCKAY	With Bank of Hamilton. Hamilton, Ont.
3.	H. L. MCKINNON, B.A.Sc.	With the Brown Hoisting Machine Cleveland, O. Co.
1.	W. W. MEADOWS, D. & O.L.S....	Engineering Staff L.E. & D.R. Ry. Walkerville, Ont.
1.	F. J. ROBINSON, D. & O.L.S.	Director of Surveys for N.W.T. Regina, N.W.T. Dept. of Public Works.
3.	F. T. STOCKING	With Pike's Peake Power Co. Victor, Col.
3.	R. C. C. TREMAINE, B.A.Sc.	(Deceased).

* Diploma with honours.

1896.

Course.	Name and address.	Occupation.
2. *J. W. BAIN, B.A.Sc.....	Lecturer in Applied Chemistry, Toronto, Ont.	School of Practical Science.
2. L. T. BURWASH	Mining Inspector.	Whitehorse, Yukon.
3. *G. M. CAMPBELL	Electrical Engineer, P. & L. E. Ry. Pittsburgh, Pa.	Co.
2. J. A. DeCEW, B.A.Sc.	Chemist, Canada Paper Co. Windsor Mills, P.Q.	
3. *H. P. ELLIOTT, B.A.Sc., M.E....	Electrical Engineer, Westinghouse Pittsburgh, Pa.	Electric and Mfg. Co.
3. W. C. GURNEY	Vice-President, Gurney Foundry Co. Toronto, Ont.	
3. *H. V. HAIGHT, B.A.Sc.	Engineer, Canadian Rand Drill Co. Sherbrooke, P.Q.	
1. W. F. LAING	(Deceased).	
3. R. R. LAWRIE	(Deceased).	
3. C. MACBETH, B.A.Sc.	Engineer, Track Dept., Detroit Detroit, Mich.	United Railways.
3. J. A. McMURCHY	With Westinghouse Machine Co. Pittsburgh, Pa.	
1. T. MARTIN, B.A.Sc.	Resident Engineer, C.P.R., Cranbrook, B.C.	Crow's Nest Pass Div.
3. R. R. SHIPE	With Toronto Engraving Co. Toronto, Ont.	

1897.

2. E. ANDREWS, B.Sc.	Res. Engineer, Blaenau, Festiniog, N. Wales.	Main Offeren Slate Quarry Co.
2. *J. A. BOW	Draftsman, Washoe Smelter. Anaconda, Mon.	
1. H. S. CARPENTER, B.A.Sc., O.L.S.Asst. Engineer, Trent Valley Canal. Peterboro, Ont.		
5. H. W. CHARLTON, B.A.Sc.....	Assistant Analyst at Experimental Ottawa, Ont.	Farm.
4. *E. A. FORWARD	Assistant Engineer, A.M. Can Soc. C.E., Iroquois, Ont.	Georgian Bay Canal Survey.

* Diploma with honours.

1897.—*Continued.*

Course.	Name and address.	Occupation.
3. *A. T. GRAY, B.A.Sc.	With General Electric Co. Schenectady, N.Y.
3. W. A. B. HICKS	With Lackawanna Steel Co. Buffalo, N.Y.
4. C. F. KING	Geological Survey of Canada. Ottawa, Ont.
1. H. W. PROUDFOOT	Engineer and Surveyor. Swan River, Man.
2. *A. H. A. ROBINSON, B.A.Sc.	Mine Surveyor, Intercolonial Coal Mining Co., Limited. Westville, N.S.
4. W. F. SCOTT	Structural Engineer for J. G. How- ard, Archt. Univ. of California. Berkeley, Cal.
3. *R. W. SMILEY, B.A.Sc.	Surveyor and Mining Engineer. Cleveland, Ohio.
2. *W. W. STULL, B.A.Sc., O.L.S....	Surveyor and Mining Engineer. Sudbury, Ont.
1. *M. B. WEEKES, B.A.Sc., D.L.S..	Surveying Staff, Dept. of the Interior. Brantford, Ont.
1. E. A. WELDON.		

1898.

1. W. H. BOYD, B.A.Sc. ....	.....	Geological Survey of Canada. Ottawa, Ont.
2. W. E. H. CARTER, B.A.Sc. ....	.....	E. T. Carter & Co., Toronto, Ont. 85 Front St., E.
3. E. H. DARLING .....	.....	With Hamilton Bridge Works Co. Hamilton, Ont.
1. W. F. GRANT, B.A.Sc. ....	.....	Engineer for H. D. Symmes, Niagara Falls, Ont. Contractor, Ontario Power Co.
1. T. S. KORMANN, B.A.Sc. ....	.....	Manager, Kormann Brewing Co. Toronto, Ont.
3. J. E. LAVROCK .....	.....	Draftsman, International Harves- ter Co. Hamilton, Ont.
4. D. MACKINTOSH, B.A.Sc., B.Arch.	.....	Firm of Hoyt & Mackintosh, Architects, 11 East Pleasant St. Baltimore, Md.
1. F. W. McNAUGHTON, O.L.S.....	.....	Deputy Minister of Public Works. Winnipeg, Man.
1. J. H. SHAW, O.L.S. ....	.....	Surveyor. North Bay, Ont.

* Diploma with honours.

1898.—Continued.

Course.	Name and address.	Occupation.
3.	A. E. SHIPLEY, B.A.Sc. Milwaukee, Wis.	Mechanical Engineer, Box 1,097.
3.	*F. C. SMALLPIECE, B.A.Sc. Peterboro, Ont.	With Canadian General Electric Co., Steam Turbine Dept.
1.	R. W. SMITH, P.L.S. Revelstoke, B.C.	Surveyor.
1.	*J. A. STEWART, M.A. Pittsburgh, Pa.	Estimating and Designing Dept., McClintic-Marshall Construction Co.
1.	*H. L. VERCORNE Winnipeg, Man.	Engineering Staff, Can. Northern Ry.
3.	T. A. WILKINSON New York, N.Y.	Electrical Engineer, Ballantyne & Evans, 22 Pine St.
3.	D. A. WILLIAMSON, B.A.Sc. Hamilton, Ont.	With Hamilton Bridge Works Co.

1899.

3.	*T. BARBER Meaford, Ont.	Hydraulic Engineer, Georgian Foundry.
2.	J. T. M. BURNSIDE, B.A.Sc. Gold Coast, W. Africa.	Lieut. Gold Coast Reg. W. African Frontier Force.
3.	L. B. CHUBBUCK, B.A.Sc. Pittsburgh, Pa.	Engineering Dept., Westinghouse Electric and Mfg. Co.
2.	G. A. CLOTHIER Rossland, B.C.	Engineer, Le Roi Mining Co.
1.	C. COOPER, Carlyle, Assa.	Surveyor.
2.	R. W. COULTHARD, B.A.Sc. Fernie, B.C.	Chief Chemist, Crow's Nest Pass Coal Co.
3.	J. A. CRAIG, B.A.Sc. Toronto, Ont.	Office of Delano-Osborne Engineer- ing Co.
2.	J. C. ELLIOTT, Kelso, Ont.	
3.	W. E. FOREMAN, B.A.Sc. Pittsburgh, Pa.	Construction Dept., Westinghouse Electric and Mfg. Co.
3.	E. GUY, B.A.Sc. Pittsburgh, Pa.	Engineering Dept. Westinghouse Electric and Mfg. Co.

* Diploma with honours.

1899.—Continued.

Course.	Name and address.	Occupation.
3.	*W. A. HARE, B.A.Sc. A.M. Can. Soc. C.E., Toronto.	Asst. Engineer, Jones Underfeed Stoker Co.
1.	R. LATHAM, B.A.Sc. Hamilton, Ont.	Asst. Engineer, T. H. & B. Ry.
3.	W. MONDS, B.A.Sc. Toronto, Ont.	Engineering Staff of Willis Chip- man, C.E.
3.	A. S. H. POPE, B.A.Sc.... Pittsburgh, Pa.	Electrical Eng. Dept., Westing- house Electric & Mfg. Co.
1.	J. PATTERSON, B.A. Allahabad, India.	Professor of Physics, Muir Central College.
2.	*G. E. REVELL, B.A.Sc. Montreal P.Q.	Office of Ross & Holgate, Consulting Engineers.
3.	*E. RICHARDS, B.A.Sc. Toronto, Ont.	With Toronto Electric Light Co.
3.	G. A. SAUNDERS Schenectady, N.Y.	With General Electric Co.
1.	*T. SHANKS, B.A.Sc., D.L.S. Ottawa, Ont.	Topographical Surveys Branch, Dept. of the Interior.
1.	*D. C. TENNANT, B.A.Sc. Montreal, P.Q.	With Dominion Bridge Co.
3.	W. W. VANEVRY 108 Union Ave., Montreal, P.Q.	Eng. Dept., Canada Car Co.
2.	G. H. WATT, D.L.S. Ottawa, Ont.	Topographical Surveys Branch, Dept. of the Interior.
3.	W. E. WAGNER, B.A.Sc. Wilmington, Del.	Superintendent of Construction for M'fg's Constructing Co.
3.	E. YEATES London, Ont.	London Machine Tool Co.

1900.

1.	J. L. ALLEN	Office of Provincial Engineer. Halifax, N.S.
2.	E. G. R. ARDAGH, B.A.Sc.	Demonstrator in Chemistry, Toronto, Ont. School of Practical Science.
3.	J. A. BAIN	Structural Dept., S. V. Huber & Pittsburgh, Pa. Co., Constructing Engineers.
3.	J. H. BARLEY, B.A.Sc.	With Stanley Electric Mfg. Co. Pittsfield, Mass.

* Diploma with honours.

1900.—Continued.

Course.	Name and address.	Occupation.
2. *M. C. BOSWELL, B.A.Sc.	Post-Graduate Course, Cambridge, Mass.	Harvard University.
1. L. T. BRAY, D. & O.L.S.	Surveyor. Amherstburg, Ont.	
3. J. CLARK	Electrician, McKee's Rocks, Pa.	P. & L. E. Power House.
2. J. E. DAVISON, B.A.Sc.	Engineering Staff, Can. Northern Toronto, Ont.	Ry.
3. E. D. DICKINSON	With General Electric Co. Schenectady, N.Y.	
3. G. W. DICKSON, B.A.Sc.	Mechanical Engineer, Can. Portable Toronto, Ont.	Fence Co.
2. *H. A. DIXON, B.A.Sc., O.L.S....	Engineering Staff, Winnipeg, Man.	Can. Northern Ry.
2. C. H. FULLERTON	Firm of Dunn and Fullerton, Winchester, Ont.	Civil Engineers.
3. W. S. GUEST	Draftsman, Jenckes Machine Co. Sherbrooke, Que.	
3. W. HEMPHILL, B.A.Sc.	With Cataract Power and Conduit 718 Fidelity Bldg., Buffalo, N.Y.	Co.
3. S. E. M. HENDERSON	Designing Engineer, Schenectady, N.Y.	General Electric Co.
3. J. A. HENRY	Engineering Dept., Schenectady, N.Y.	General Electric Co.
2. H. S. HOLCROFT, B.A.Sc., D.L.S.	Surveyor. Toronto, Ont.	
3. H. A. JOHNSTON	Mechanical Engineer, Toronto, Ont.	148 Clinton St.
3. J. C. JOHNSTON,	City Engineer's Staff. Toronto, Ont.	
2. *J. A. JOHNSTON, B.A.Sc.	Transitman, Party No. 7. North Bay, Ont.	G. T. P. Ry. Survey.
2. R. E. McARTHUR	Resident Engineer, C.P.R. Calgary, Assa.	
2. J. G. McMILLAN, B.A.Sc.	Fellow in Mining Toronto, Ont.	School of Practical Science.
3. L. HAUN MILLER	With Wellman-Sever & Morgan Cleveland, O.	Engineering Co.

* Diploma with honours.

1900.—Continued.

Course.	Name and address.	Occupation.
2.	E. V. NEELANDS, B.A.Sc. Crystal, Colo.	Supt. Black Queen Mining & Milling Co.
1.	*E. H. PHILLIPS, D.L.S. Ottawa, Ont.	Topographical Surveys Branch, Dept. of the Interior.
2.	J. R. ROAF, B.A.Sc. Michel, B.C.	Draftsman, Crow's Nest Pass Coal Co.
3.	*C. H. E. ROUNTHWAITE North Bay, Ont.	Draftsman, Party No. 1 G.T.P. Ry.
2.	H. W. SAUNDERS, B.A.Sc. Gary, W. Va.	Engineering Dept., U.S. Coal & Coke Co.
1.	A. TAYLOR Winnipeg, Man.	With C.P.R. Land Department.
1.	W. C. TENNANT, B.A.Sc.	(Deceased.)
2.	S. M. THORNE, B.A.Sc. Niagara Falls, Ont.	Engineering Staff, The Ontario Power Co.
1.	F. W. THOROLD, B.A.Sc. Calgary, Alta.	City Engineer.
1.	H. M. WEIR, B.A.Sc. Londonderry, N.S.	With Londonderry Iron & Mining Co.
3.	F. D. WITHROW Toronto, Ont.	Department of Public Works of Canada.

1901.

1.	R. H. BARRETT, B.A.Sc., O.L.S..(Deceased.)	
3.	W. G. BEATTY Fergus, Ont.	Manager, Beatty Bros., Implement Manufacturers.
3.	G. M. BERTRAM 71 Broadway, New York.	Office of the Sullivan Machinery Co.
3.	W. J. BOWERS Toronto, Ont.	Assistant Engineer, Office of John Galt, C.E., & M.E.
3.	E. T. J. BRANDON, B.A.Sc. Niagara Falls.	Engineering Staff, Ontario Power Co.
3.	W. P. BRERETON, B.A.Sc. Toronto, Ont.	McLachlan Gasoline Engine Co.
3.	J. T. BROUGHTON Pittsburgh, Pa.	Draftsman, Mesta Machine Co.
3.	*W. G. CHACE, B.A.Sc. Niagara Falls, Ont.	Engineer on Construction, International Ry. Co.

* Diploma with honours.

GRADUATES.

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1901.—*Continued.*

Course.	Name and address.	Occupation.
3.	A. G. CHRISTIE	Instructor in Mechanical Engineering, Cornell University. Ithaca, N.Y.
3.	J. R. COCKBURN, B.A.Sc.	Demonstrator in Drawing, Toronto, Ont. School of Practical Science.
1.	W. A. DUFF,	Draftsman, Walkerville, Ont. Canadian Bridge Co.
2.	*D. E. EASON, B.A.Sc... ..	Engineering Staff, Peterboro, Ont. Trent Valley Canal.
1.	*S. GAGNE, B.A.Sc.	Office of W. T. Jennings, C.E., Toronto, Ont. Consulting Engineer.
3.	N. R. GIBSON, B.A.Sc.....	Engineering Staff, Niagara Falls, Ont. Ontario Power Co.
1.	C. HARVEY, B.A.Sc., D.L.S... ..	Consulting Engineer and Surveyor. Kelowna, B.C.
2.	A. T. E. HAMER... ..	Managing Director, North Shore Toronto, Ont. Copper & Smelting Co., Ltd.
2.	F. C. JACKSON.....	Res. Engineer, Temiskaming and North Bay, Ont. Northern Ontario Ry.
3.	*A. LAIDLAW	Peninsular Engineering & Jackson, Mich. Construction Co.
3.	W. C. LUMBERS.....	Agent, Lee Electric Insole Co. Toronto, Ont.
3.	A. C. MACDOUGALL.....	Asst. Supt., Massena, N. Y. Pittsburgh Reduction Co.
3.	A. T. C. McMASTER, B.A.Sc.....	Assistant Engineer, Clifton, Arizona. Arizona Copper Co.
1.	G. MacMILLAN Winnipeg, Man.	
3.	*H. G. McVEAN, B.A.Sc.	Demonstrator in Mechanical Engi- Toronto, Ont. neering, School of Practical Science.
2.	W. C. MATHESON.....	With McKenzie, Mann Co. Toronto, Ont.
3.	H. T. MIDDLETON	Assistant Superintendent, Massena, N.Y. Indestructible Fibre Co.
2.	J. L. R. PARSONS, B.A., D.L.S... ..	Fellow in Surveying, Toronto, Ont. School of Practical Science.
1.	G. H. POWER... ..	Office of Willis Chipman, C.E. Toronto, Ont.

* Diploma with honours

1901.—*Continued.*

Course.	Name and address.	Occupation.
3. *H. W. PRICE, B.A.Sc.....	Toronto, Ont.	Demonstrator in Electrical Engineering, School of Practical Science.
1. H. P. RUST, B.A.Sc.....	Niagara Falls, Ont.	Engineering Staff, Canadian Niagara Power Co.
3. M. V. SAUER, B.A.Sc.....	Niagara Falls, Ont.	Engineering Staff, Ontario Power Co.
3. W. H. STEVENSON, B.A.Sc.....	Chicago, Ill.	General Inspector, Griffin Wheel Co.
1. R. D. WILLSON	Winnipeg, Man.	Engineering Staff, Canadian Northern Ry. Co.

1902.

3. *H. G. BARBER.....	Ottawa, Ont.	Topographical Survey's Branch, Department of the Interior.
1. W. J. BLAIR, B.A.Sc., D.&O.L.S.	New Liskeard, Ont.	Engineer and Land Surveyor.
3. J. M. BROWN... ..	Pittsburgh, Pa.	With Westinghouse Machine Co., Steam Turbine Dept.
2. W. G. CAMPBELL.....		
2. A. R. CAMPBELL	Toronto, Ont.	Office of Willis Chipman, C.E.
3. C. G. CARMICHAEL	Cincinnati, O.	Testing Department, Bullock Electric Mfg. Co.
2. *W. CHRISTIE, B.A.Sc.....	Markerville, Alta.	Asst. to H. W. Selby, D.L.S.
2. F. T. CONLON.....	Thorold, Ont.	Welland Canal Engineering Staff.
3. H. V. CONNOR.....	Pittsburgh, Pa.	With Westinghouse Electric & Mfg. Co.
2. *M. T. CULBERT.....	784 Wellington St., London, Ont.	Mining Engineer.
2. R. CUMMING.....	Port Arthur, Ont.	Engineer for Grant & Co., Contractors.
1. W. E. DOUGLAS, B.A.....	Toronto, Ont.	Office of Willis Chipman, C.E.
3. *R. J. DUNLOP.....	Toronto, Ont.	With Canadian Westinghouse Co.

* Diploma with honours.

1902.—Continued.

Course.	Name and address.	Occupation.
2.	W. M. EDWARDS, B.A.Sc... .. Hamilton, Ont.	With Hamilton & Brantford Ry. Company.
3.	W. ELWELL..... Toronto, Ont.	
2.	J. M. EMPEY, B.A.Sc., D.L.S... Ottawa, Ont.	Topographical Survey's Branch, Dept. of the Interior.
2.	*D. L. H. FORBES..... Clifton, Arizona.	Chief Engineer, Arizona Copper Co.
1.	*A. E. GIBSON, B.A.Sc... .. Toronto, Ont.	Fellow in Civil Engineering, School of Practical Science.
3.	A. C. GOODWIN... .. New Kensington, Pa.	Draftsman, Pittsburgh Reduction Co.
3.	C. HENWOOD	Draftsman, Westinghouse Machine Co.
3.	D. M. JOHNSTON..... Toronto, Ont.	Manager, Volta Electric Co.
2.	R. H. KNIGHT, B.A.Sc., D.L.S... Edmonton, Alta.	Engineer and Surveyor.
5.	*F. L. LANGMUIR, B.A.Sc..... University of Freiburg, in Breisgau, Germany.	*Post-Graduate Course in Chem- istry.
3.	A. H. McBRIDE, B.A.Sc... .. Toronto, Ont.	Asst. to R. J. Parke, Consulting Electrical Engineer.
1.	A. L. McLENNAN, D.L.S..... Toronto, Ont.	Office of J. McDougall, C.E., York Co. Engineer.
3.	J. T. MACKAY	Student in Faculty of Medicine, University of Toronto.
3.	J. F. S. MADDEN..... Peterboro, Ont.	Erecting Engineering Dept., Can. Gen. Electric Co.
3.	*C. H. MARRS..... Hamilton, Ont.	Draftsman, Hamilton Bridge Works Co.
3.	P. MATHISON, B.A.Sc..... Pittsburgh, Pa.	With Westinghouse Electric & Mfg. Co.
3.	R. S. MENNIE..... Pittsburgh, Pa.	Draftsman, Riter-Conley Mfg. Co.
2.	H. H. MOORE, D.L.S..... Calgary, N.W.T.	Engineer and Surveyor.
1.	*T. S. NASH..... Ottawa, Ont.	Topographical Survey's Branch, Department of the Interior.

*Diploma with honors.

1902.—*Continued.*

Course.	Name and address.	Occupation.
1.	G. G. POWELL, B.A.Sc.	Asst. to General Manager, Toronto, Ont. Constructing & Paving Co.
1.	*W. F. RATZ, D.L.S.	International Boundary Commis- sion, Department of the In- terior.
3.	H. D. ROBERTSON, B.A.Sc.	With Westinghouse Electric and Pittsburgh, Pa. Manufacturing Co.
3.	*D. SINCLAIR, B.A.Sc.	Engineering Staff, G.T.R. Bridge Stratford, Ont. Department.
2.	*I. J. STEELE	Topographical Survey's Branch, Ottawa, Ont. Department of the Interior.
3.	W. H. SUTHERLAND, B.A.Sc.	Electrical Engineer, Montreal, Que. Montreal Water & Power Co.
3.	*T. TAYLOR	Draftsman, McChutie-Marshall Con- struction Co., Rankin, Pa.
2.	*TEASDALE, C. M.	Asst. to D. Beatty, D.L.S. Aldina P.O., Sask.
3.	A. A. WANLESS	Engineering Staff, Nova Scotia Sydney Mines, N.S. Steel and Coal Co.
3.	H. J. ZAHN, B.A.Sc.	Draftsman, Taylor & Dean, Pittsburgh, Pa. 203 Market St.

1903.

3.	H. G. ACRES	Asst. Mechanical Engineer, Niagara Falls, Ont. Canadian Niagara Power Co.
3.	*H. H. ANGUS, B.A.Sc.,	With Westinghouse Machine Co. East Pittsburgh, Pa.
3.	J. A. BEATTY	Engineering Staff, Manufacturers' Wilmington, Del. Contracting Co.
3.	*J. BRESLOVE	Westinghouse Machine Co. Pittsburgh, Pa.
2.	J. H. BURD	Owen Sound, Ont.
1.	*E. L. BURGESS, D.L.S.	Topographical Survey's Branch, Ottawa, Ont. Dept. of the Interior.

*Diploma with honors.

1903.—Continued.

Course.	Name and address.	Occupation.
1.	F. F. CLARKE, O.L.S..... Winchester, Ont.	Engineer and Surveyor.
2.	C. L. COULSON..... Welland, Ont.	Assistant to Geo. Ross, C.E.
3.	*A. E. DAVISON..... Toronto, Ont.	Post-Graduate Course, School of Practical Science.
3.	C. J. FENSOM, B.A.Sc..... Toronto, Ont.	Engineering Department, Fensom Elevator Co., Ltd.
2.	*E. O. FUCE..... Berlin, Ont.	Office of M. M. Davis, O.L.S.
3.	*F. A. GABY, B.A.Sc..... Toronto, Ont.	Engineering Department, Canadian General Electric Co.
3.	R. E. GEORGE..... Dover, N.H.	Electrical and Gas Engineer, The United Gas & Electric Co.
1.	J. C. GARDNER, B.A.Sc..... Toronto, Ont.	Office of W. T. Jennings, C.E., Consulting Engineer.
1.	*P. GILLESPIE, B.A.Sc..... Toronto, Ont.	Demonstrator in Applied Mechanics, School of Practical Science.
1.	W. A. GOURLAY..... Toronto, Ont.	Office of W. T. Jennings, C.E., Consulting Engineer.
2.	J. F. HAMILTON, B.A.Sc..... Dunedin, Ont.	
2.	G. S. HANES..... Toronto, Ont.	Post-Graduate Course, School of Practical Science.
5.	J. A. HORTON..... Toronto, Ont.	Lecture Assistant in Chemistry, School of Practical Science.
2.	F. Y. HARCOURT B.A..... Niagara Falls, Ont.	Ontario Niagara Falls Power Co.
1.	L. J. HAYES..... Toronto, Ont.	Structural Department, Canada Foundry Co.
1.	*F. D. HENDERSON..... Ottawa, Ont.	Topographical Survey's Branch, Dept. of the Interior.
3.	J. G. JACKSON..... 55 Duane St., New York, N.Y.	Engineering Dept., New York Edison Co.
3.	C. K. JOHNSTON..... Winnipeg, Man.	G. T. P. Railways Surveys.

* Diploma with honors.

1903.—Continued.

Course.	Name and address.	Occupation.	
1.	H. JOHNSTON.....	Office of M. M. Davis, O.L.S. Berlin, Ont.	
3.	A. G. LANG.....	Student, 357 West 117th St., New York, N. Y.	Columbia University.
1.	*A. J. LATORNELL	Office of Division Engineer, C.P.R. Ottawa, Ont.	
1.	*H. J. MCAUSLAN	Post-Graduate Course, Toronto, Ont.	School of Practical Science.
3.	J. A. McFARLANE, B.A.Sc.....	Fellow in Mechanical Engineering, Toronto, Ont.	School of Practical Science.
1.	*A. L. McNAUGHTON	Topographical Survey's Branch, Ottawa, Ont.	Dept. of the Interior.
5.	F. G. MARRIOTT.....	Post-Graduate Course, Toronto, Ont.	School of Practical Science.
3.	*C. A. MAUS	Paris, Ont.	
3.	*M. L. MILLER	Draftsman, International Hamilton, Ont.	Harvester Co.
2.	*R. H. MONTGOMERY, D.L.S. ..	Post-Graduate Course, Toronto, Ont.	School of Practical Science.
1.	F. A. MOORE.....	Topographical Survey's Branch, Ottawa, Ont.	Dept. of the Interior.
3.	E. E. MULLINS.....	Baldwin Locomotive Works. Philadelphia, Pa.	
3.	I. H. NEVITT, B.A.Sc.....	Office of City Engineer. Toronto, Ont.	
1.	E. W. OLIVER, B.A.Sc.....	Engineering Staff, Winnipeg, Man.	Can. Northern Ry.
3.	J. P. OLIVER.....	Riter-Conley Mfg. Co. Pittsburgh, Pa.	
3.	J. D. PACE, B.A.Sc.....	With Ragged Rapids Hydraulic Orillia, Ont.	Electric Plant.
3.	B. B. PATTEN, B.A.Sc.....	Civil Engineering Course, Toronto, Ont.	School of Practical Science.
2.	D. H. PHILIP.....	Topographical Survey's Branch, Ottawa, Ont.	Dept. of the Interior.
3.	*D. H. PINKNEY	Draftsman, National Tube Dept., Lorain, O.	U.S. Steel Corporaton.

* Diploma with honors.

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Course.	Name and address.	Occupation.
2.	T. H. PLUNKETT, B.A.Sc..... Meaford, Ont.	
1	*H. L. SEYMOUR Ottawa, Ont.	Topographical Survey's Branch. Dept. of the Interior.
3.	*H. M. SHIPE Toronto, Ont.	Post-Graduate Course, School of Practical Science.
1.	J. H. SMITH, D. & O.L.S... Pembroke, Ont.	Engineer and Surveyor.
3.	H. G. SMITH, B.A.Sc..... Toronto, Ont.	Fellow in Electrical Engineering, School of Practical Science.
3.	S. L. TREES, B.A.Sc..... Toronto, Ont.	Samuel Trees & Co., 42 Wellington St. E.
1.	J. WALDRON..... Niagara Falls, Ont.	Asst. to T. Fawcett, D.L.S.
3.	*S. B. WASS Toronto, Ont.	Office of Jas. McDougall, County Engineer.
3.	J. A. WHELIHAN..... Glen Ridge, N.J.	Edison Storage Battery Co.
3.	H. F. WHITE..... Toronto, Ont.	Post-Graduate Course School of Practical Science.
2.	*C. G. WILLIAMS Toronto, Ont.	Post-Graduate Course, School of Practical Science.
1	*N. D. WILSON, B.A.Sc. Toronto, Ont.	Fellow in Surveying, School of Practical Science.
1.	*C. R. YOUNG Toronto, Ont.	Post-Graduate Course, School of Practical Science.

1904.

3	*ALEXANDER, J. H. 328 St. Joseph St., Lachine, P.Q.	Draftsman, Dominion Bridge Co.
3.	*BARRETT, J. H. Toronto, Ont.	With The Wm. Davies Co., Ltd.
3.	BONNELL, M. B. Toronto, Ont.	Post Graduate Course, School of Practical Science.
3.	BROWN, T. D. Barrie, Ont.	

* Diploma with honors.

1904.—Continued.

Course.	Name and address.	Occupation.
3.	CALDER, J. W. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
1.	CAMPBELL, A. J. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
	CAMERON, N. C. Montreal.	With Ross & Holgate, Consulting Electrical and Mechanical En- gineers.
3.	*CAMPBELL, A. M. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
4.	CHALLIES, J. B. Ottawa, Ont.	Topographical Surveys Branch, Dept. of the Interior.
2.	CHILVER, C. A. Hamilton, Ont.	Assistant to W. J. Tyrrell.
1.	CHRISTIE, U. W. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
2.	COATES, P. C. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
1.	CODE, S. B. Smith's Falls, Ont.	Office of J. H. Moore, Engineer and Surveyor.
1.	*CODE, T. F. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
1.	*COWAN, W. A. Toronto, Ont.	C. F. R. Engineering Staff.
3.	*CRAIG, S. E. Stratford, Ont.	Engineering Dept., G. T. Ry.
1.	*CRERAR, S. R. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
3.	CURRIE, W. M. Hamilton, Ont.	Chief Inspector and Engineer, Hamilton Steel & Iron Co.
3.	DEPEW, H. H. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
2.	FLECK, J. G. Madawaska, Ont.	Lumbering.
1.	*FORD, A. L. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
3.	GIBSON, W. S. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
3.	GRAY, W. W. Toronto, Ont.	Post-Graduate Course, School of Practical Science.

* Diploma with honors.

1903.—Continued.

Course.	Name and address.	Occupation.
3.	GREENWOOD, W. K. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
1.	HARA, L. D. St. Catharines, Ont.	Leveller and Draughtsman, Welland Canal Co.
1.	HARRIS, C. J. Brantford, Ont.	Brantford Screw Co.
1.	HERON, J. B. Dinorwic, Ont.	Engineering Staff, G. T. Ry.
1.	HILL, E. M. M. Guelph, Ont.	
2.	HILL, S. N. Ottawa, Ont.	Topographical Surveys Branch, Dept. of the Interior.
2.	INLGES, C. J. Toronto, Ont.	Office of Willis Chipman, C.E., Consulting Engineers.
1.	JAMES, E. A. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
1.	JERMYN, P. V. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
3.	KEEFE, W. S. H. Fort Covington, N.Y.	Manager Light, Heat & Power Co.
3.	LARKWORTHY, W. J. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
3.	McCUAIG, O. B. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
1.	McEWEN, G. G. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
1.	*McFARLANE, W. G., B.A. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
3.	*McGIBBON, C. P., B.A. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
3.	McKAY, C. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
1.	McMILLAN, D. Woodville, Ont.	
3.	MANSON, G. J. Toronto, Ont.	Fellow in Electrical Engineering, School of Practical Science.
1.	*MOORHOUSE, W. N. Hamilton, Ont.	Asst. Engineer, Hamilton & Brantford Ry.

* Diploma with honors.

1904.—*Continued.*

Course.	Name and address.	Occupation.
3.	MOORE, E. E. Peterboro, Ont.	Can. Gen. Electric Co.
3.	MUNRO, W. H. Peterboro, Ont.	Wm. Hamilton Mfg. Co.
3.	PACE, G. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
3.	PARDOE, W. S. Toronto, Ont.	Pump Dept., Canada Foundry.
3.	PARIS, J. North Bay, Ont.	Inspector, Temiskaming & Northern Ontario Railway.
2	PARKE, J. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
3.	PEAKER, W. J. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
3.	*PICKERING, A. E. Sault Ste. Marie, Ont.	Draughtsman, Lake Superior Power Co.
1.	RAYMOND, D. L. C. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
3.	*RIDDELL, M. R. Toronto, Ont.	Fellow in Drawing, School of Practical Science.
3.	ROXBURGH, G. S. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
2.	RUTHERFORD, F. N. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
1.	*SHEPLY, J. D. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
3.	*SMART, R. S. Ottawa, Ont.	Manager, Office of Fetherston- haugh & Co., Patent Solici- tors, Engineers, etc.
3.	SMITHER, W. J. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
3.	SLATER, F. W. Toronto, Ont.	Inspector, Fire Prevention Appli- ances, Can. Fire Underwriter's Ass'n.
3.	THOMSON, S. E. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
3.	TOWNSEND, C. J. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
1.	TOWNSEND, D. T. Toronto, Ont.	Post-Graduate Course, School of Practical Science.

* Diploma with honors.

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Course.	Name and address.	Occupation.
1.	TRIMBLE, A. V. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
3.	TUCKER, B. B. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
2	*WADE, E. Toronto, Ont.	Fellow in Chemistry, School of Practical Science.
1.	*WALKER, E. W. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
3	WATSON, J. P. Omaha, Neb.	Special Apprentice, Union Pacific R. R. Shops.
7.	WEIR, J. M. Hamilton, Ont.	Engineering Staff, G. T. Ry.
1.	*WELLS, A. F., O.L.S. Niagara Falls, Ont.	With H. Jackson, City Engineer.
1	WORTHINGTON, W. R. Toronto, Ont.	Post-Graduate Course, School of Practical Science.
3	WRIGHT, W. F. Toronto, Ont.	Post-Graduate Course, School of Practical Science.

CERTIFICATES.

MINERALOGY AND ASSAYING.

Date.	Name and Address.	Occupation.
1896.	G. Johnston	
1896.	A. T. Tye	
1897.	E. B. Webster.....	
1898.	A. N. McMillan	
	Penetanguishene, Ont.	
1900.	A. H. Smith	Supt. Los Reyes Gold Mining & Oaxaca, Mexico. Milling Co.
1901.	G. A. Hunt	

ELECTRICITY.

1896.	E. I. Sifton	Manager London Electric Con- London Ont. struction Co.
1903.	W. Elwell.....	
	Toronto, Ont.	

* Diploma with honors.

INDEX TO GRADUATES.

In the following alphabetical list of the Graduates is given the year of graduation of each student. In the preceding list, which is arranged by classes in the order of graduation, may be found additional information as to occupation, addresses, etc.

A.

Acres, H. G....	1903	Angus, R. W.	1894
Alexander, J. H.	1904	Angus, H. H.	1903
Alison, T. H.	1892	Apsey, J. F....	1888
Allan, J. R....	1892	Ardagh, J. A.	1893
Allan, J. L....	1900	Ardagh, E. G. R.	1900
Anderson, A. G....	1892	Armstrong, J.	1895
Andrews, E.	1897	Ashbridge, W. T.	1888

B.

Bain, J. A....	1900	Bowman, H. J.	1885
Bain, J. W.	1896	Bowman, F. M.	1890
Ball, E. F.	1888	Bowman, A. M....	1886
Ballantyne, H. F.	1893	Boyd, D. G.	1894
Barber, H. G.	1902	Boyd, W. H.	1898
Barber, T.	1899	Brandon, E. T. J.	1901
Barker, H. P.	1893	Bray, L. T.	1900
Barley, J. H.	1900	Brebner, G....	1895
Barrett, R. H.	1901	Brereton, W. P....	1901
Barrett, J. H.	1904	Breslove, J.	1903
Beatty, H. J.	1890	Brodie, W. M.	1895
Beatty, W. G.	1901	Broughton, J. T.	1901
Beatty, J. A.	1903	Brown, J. M.	1902
Beauregard, A. T.	1894	Brown, D. B.	1888
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 Craig, J. A.1899
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 Hutcheon, J. 1890

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 Taylor, W. V. ... 1893
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 *Teasdale, C. M. ... 1902
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 Weldon, E. A. ... 1897
 Wells, A. F. ... 1904
 Whelihan, J. A. ... 1903

White, A. V. ... 1892
 White, H. F. ... 1903
 Wickett, T. ... 1889
 Wiggins, T. H. ... 1890
 Wilkinson, T. A. ... 1898
 Williamson, D. A. ... 1898
 Williams, C. G. ... 1903
 Willson, R. D. ... 1901
 Wilson, N. D. ... 1903
 Withrow, W. J. ... 1890
 Withrow, F. D. ... 1900
 Worthington, W. R. ... 1904
 Wright, C. H. C. ... 1888
 Wright, R. T. ... 1894
 Wright, W. F. ... 1904

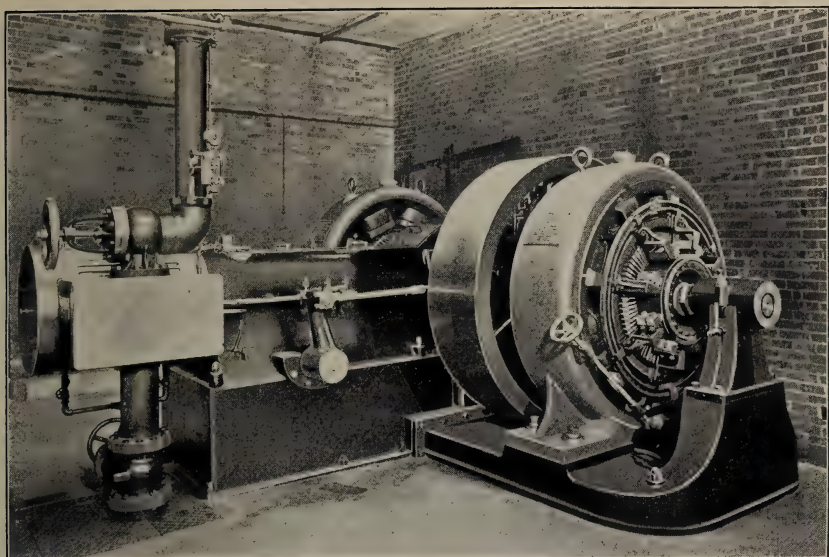
Y.

Yeates, E. ... 1899

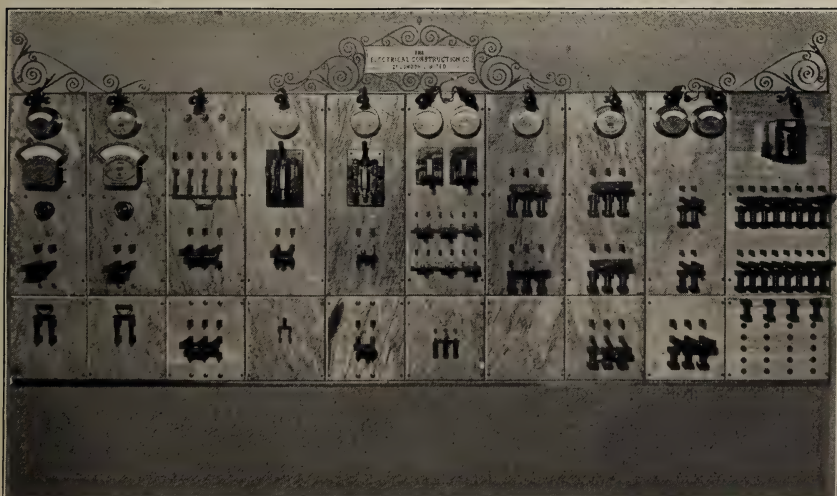
Young, C. R. ... 1903

Z.

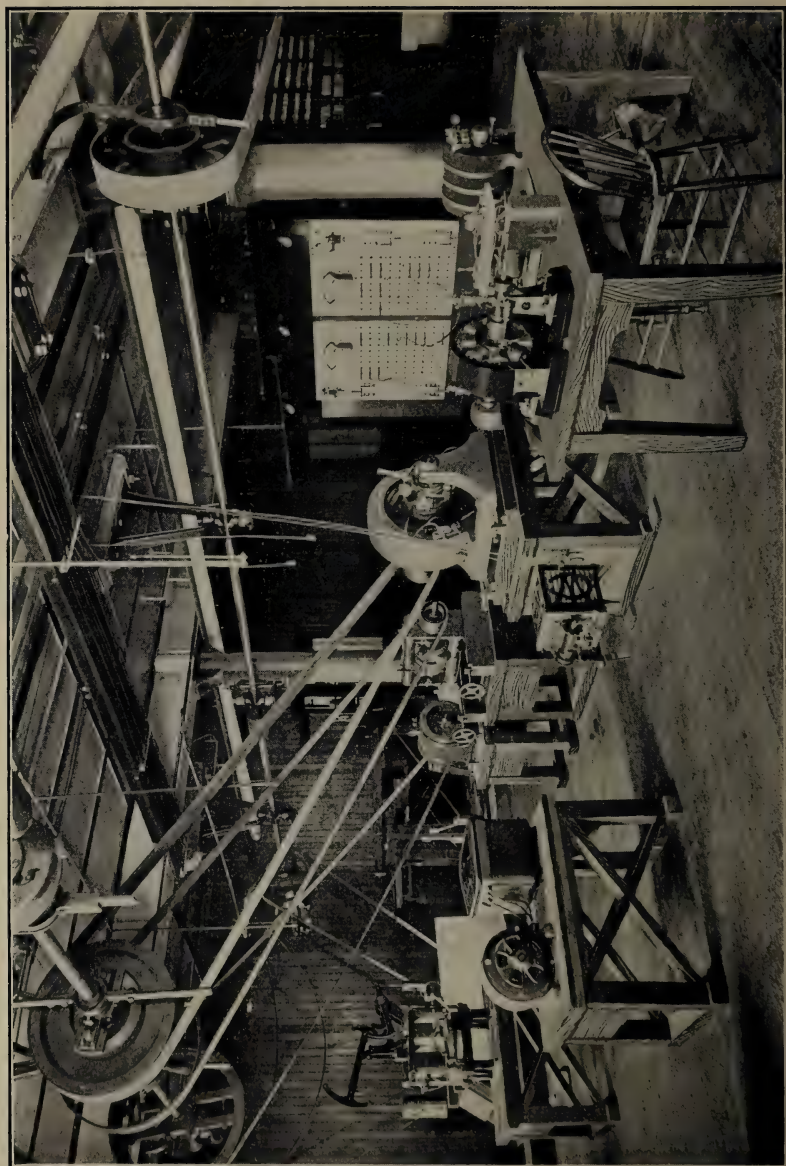
Zahn, H. J. ... 1902



POWER ENGINE AND GENERATORS.



SWITCH BOARD.



PORTION OF DYNAMO LABORATORY.



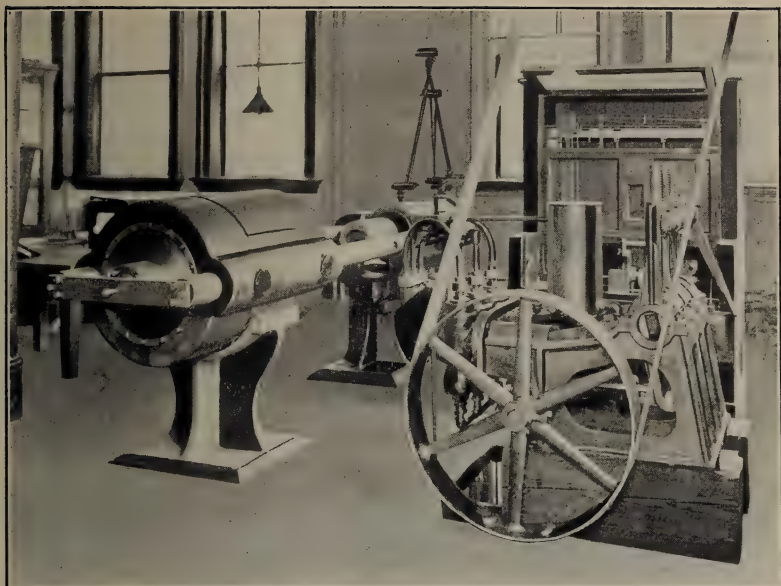
OPTICAL LABORATORY.



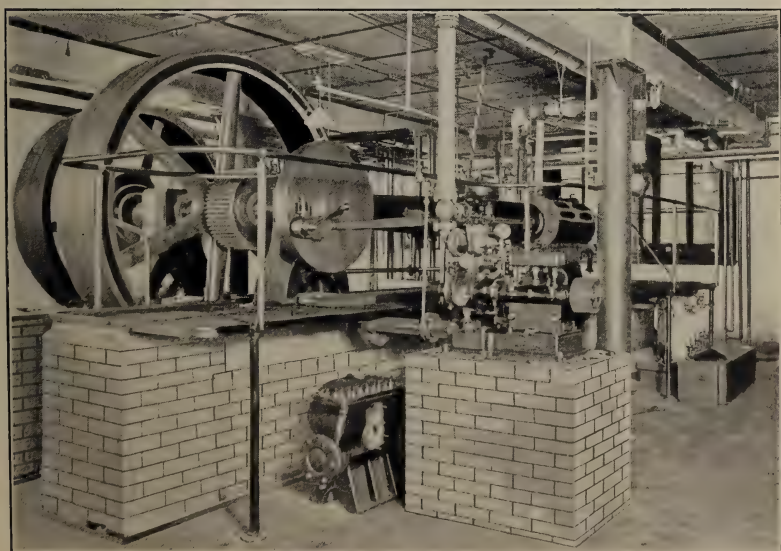
GALVANOMETER LABORATORY.



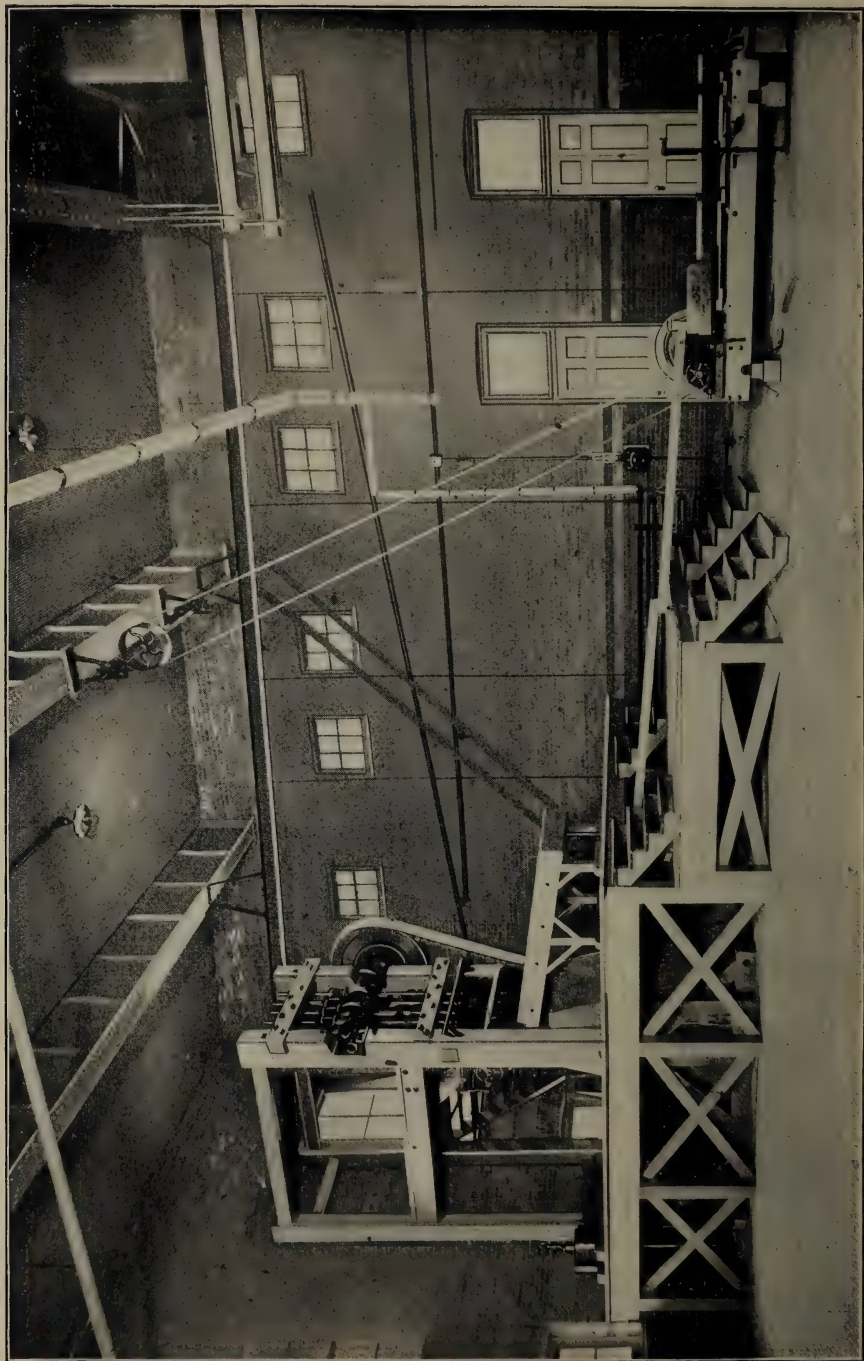
SENIOR ELECTRICAL LABORATORY.



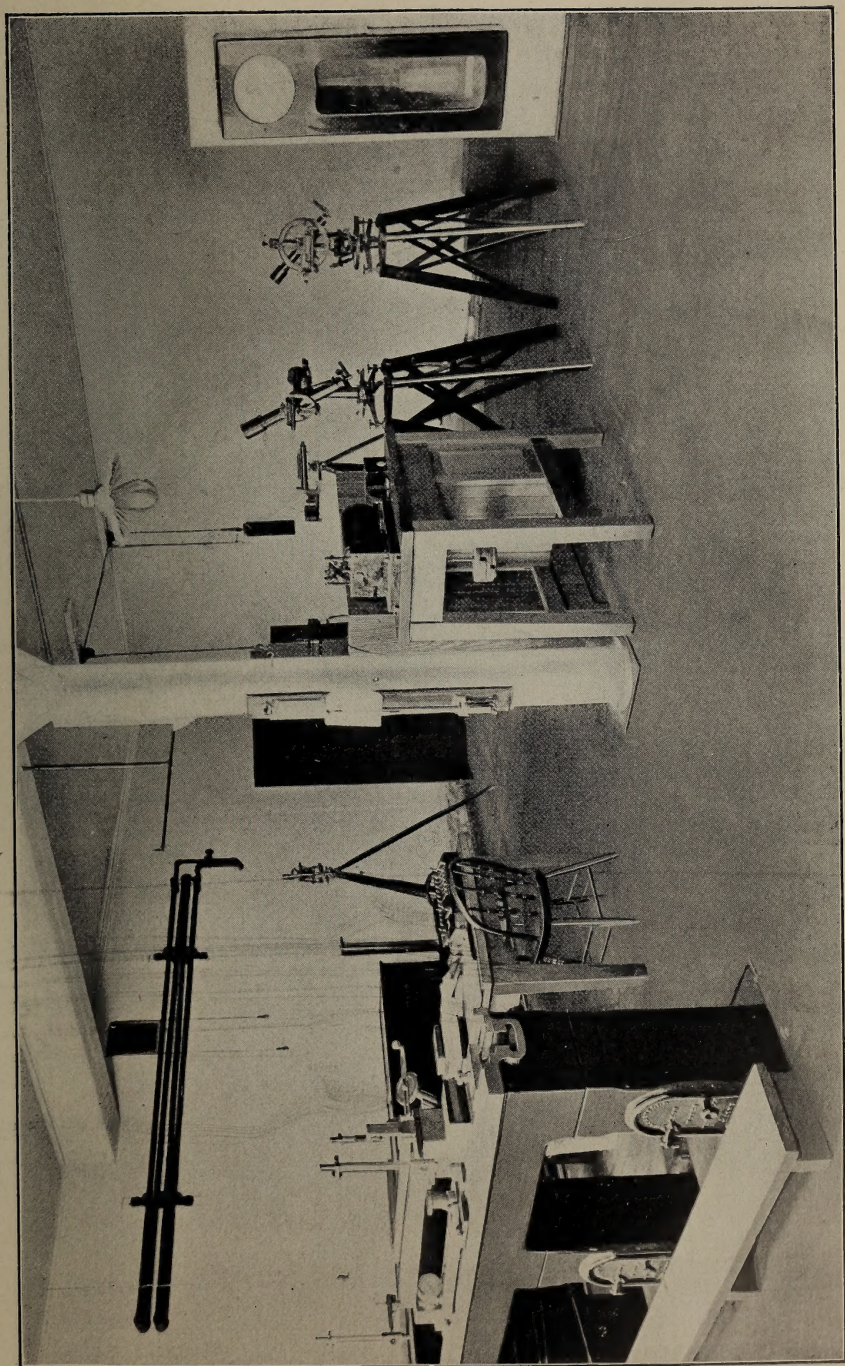
EMERY TESTING MACHINE.



EXPERIMENTAL ENGINE AND STEAM TURBINE.



MILL ROOM.



METROLOGICAL LABORATORY.



FIRST YEAR DRAFTING ROOM.

